PALESTINE EXPLORATION QUARTERLY

Embodying the *Quarterly Statement* of the Palestine Exploration Fund and the *Bulletin* of the British School of Archaeology in Jerusalem

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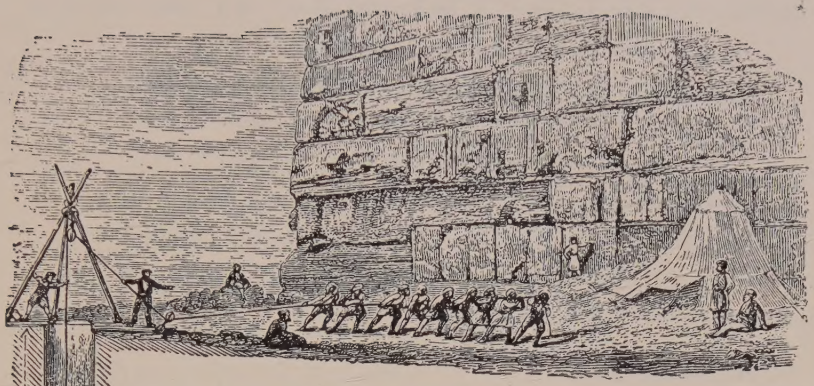

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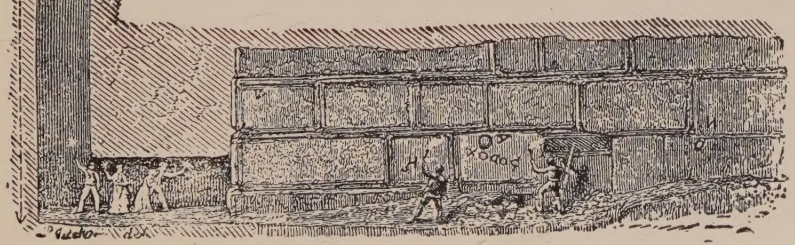

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THE PALESTINE EXPLORATION FUND NOTES AND NEWS

The archaeological work carried out at various sites in Jordan by Miss Diana Kirkbride is well known to readers of this *Quarterly* and highly appreciated by them. No reference, however, has been made in our pages thus far to the survey which she undertook in May, 1959, in and around the Wadi Rumm. This wadi, about 40 km. east of Aqaba and slightly to the north, is described by T. E. Lawrence in Chapter 62 of *Seven Pillars of Wisdom*. He fell under its spell: " I liked Rumm too much ", he confesses. Archaeological remains there range back in time from a Nabataean temple and village to a Stone Age settlement of *c.* 4500 B.C. Among other interesting discoveries in this area was a stone circle, 20 metres in diameter, in Wadi edh-Dhaiqeh, which lies about 11 km. south of the Desert Patrol fort in Rumm. The stones of this circle had carved on them rough portraits of men and women (and one possibly of a child); they were apparently memorials of real persons, not representations of deities or demons. The age of the circle is difficult to determine, but it had evidently lost its sanctity by the 6th century A.D., for some of the stones were removed to be used in burial cairns, one of which has late Thamudic *graffiti* scribbled on it. It is hoped that further work on the site will throw some light on these carvings.

The excavations at Abu Matar and Safadi, near Beersheba, which have been carried out since 1952 under the direction of M. Jean Perrot, have now been concluded. The most interesting conclusions reached in the course of the excavations concerned the ancient " troglodyte " occupation on both banks of the Wadi es-Sab. These " troglodytes ", so called because of the subterranean villages in which they lived for some 200 years in the later part of the 4th millennium B.C., enjoyed a tranquil life such as was rarely to recur for any great length of time in Palestinian history. It was apparently comfort rather than security that made them live underground. They were able to cultivate cereals; wheat, barley and lentils have been found in their silos and basins. Well irrigation seems to have been practised. They used the ox as a beast of burden and transport, and sheep and goats for food. Among their artifacts are tools of flint, bone and stone, and also of pure copper; elegant hand-made earthenware vessels and fine basalt vases. The copper industry was evidently concentrated at Abu Matar. At Safadi the workshop of an ivory carver was found. These people represent the earliest

members of the Anatolian or Armenoid race to appear in Palestine; the formative phase of their culture has been located in the region around the Syro-Arabian desert in the 5th millennium B.C. In Palestine it disappears about the end of the 4th millennium as suddenly and as completely as it appeared a few centuries earlier.

A fourth season of excavation at Bethel was led last summer by Professor J. L. Kelso, assisted by Professor T. M. Taylor. The main discovery was of an ancient Canaanite high place, in use as early as the 22nd century B.C. The site of the altar of sacrifice was located by the evidence of bloodstains at many points along an area of 50 feet. An FBI test was applied at ten points for identification of blood, and a positive reaction was secured each time. The expedition was conducted jointly by Pittsburgh Theological Seminary and the American School of Oriental Research in Jerusalem.

The third season of archaeological excavation at Tell Balata (Shechem), undertaken by the Drew-McCormick expedition, has also yielded valuable information. According to a report issued last August by the Jordan Department of Antiquities, it is now estimated that civilization came to Shechem about 1750 B.C., to which period is assigned a palace of which traces have been found. About a century later Shechem extended farther to the north-west and a temple-fortress was built, whose massive remains constitute the most impressive monument in the district. From a later period comes a small pot containing coins, the latest of which is a coin of Ptolemy IV, minted shortly before the Seleucid conquest of Palestine at the beginning of the 2nd century B.C.

A five-month expedition in the region of Wadi Timna and Wadi Amram, west of the Israel-Jordan frontier between 'Ein 'Adian and Elath, is said to have located the sites of King Solomon's copper-mines and of his smelting-plants. At the foot of the high massif which dominates Wadi Timna from the west a petrified forest was identified, and green lumps of rich copper ore (copper sulphide containing about 45 per cent. copper) were found between the roots of the trees. A number of manmade holes in the sandstone were evidently designed to follow the petrified trees to their copper-crusted roots or to dig out veins of ore from the rock. Several hundred similar holes were found in the neighbourhood, together with a large number of stone implements, and pottery which could be dated with certainty in the 11th and 10th centuries B.C. An elaborate system of cisterns in the vicinity would have provided the miners with a plentiful water supply. As regards the smelting process, the ore was crushed, mixed with finely ground flux and charcoal, and slowly dispersed on to open charcoal fires. The details of the discovery have been published in various periodicals by Mr. Beno Rothenberg, leader of the expedition; we are indebted for much of our

information to an article of his in *The Jerusalem Post* for January 15, 1960. The question will immediately be asked, and must await further elucidation, what relation these discoveries bear to the well-known discoveries of Dr. Nelson Glueck in the Wadi Araba, some ten kilometres farther east.

The eighth volume of *Scripta Hierosolymitana*, which bears the title *Studies in the Bible*, includes a contribution by Professor Yigael Yadin on " Ancient Judaean Weights and the Date of the Samaria Ostraca ". These are two subjects with little enough in common, but Professor Yadin treats them within the compass of one article because both involve the decipherment of Hebrew numerical signs. He discusses first some of the signs found on weights from nine different sites in the ancient kingdom of Judah. Some of them plainly denote the numerals 1, 2, 4 and 8, and point to the existence of a unit of weight equivalent to *c.* 11·4 grams. This unit appears to be that known as the " royal shekel "; the numerical signs are accompanied by a sign 8 (like an arabic 8 with the upper part of the upper circle missing), which was evidently the equivalent of *lmlk* (" the king's "). But how should this sign acquire that meaning? Professor Yadin points out that the Judaean jars which bear the stamp *lmlk* also bear a four-winged beetle, which was evidently a royal symbol. He suggests that the sign on the weights was this four-winged beetle, " stripped to its most basic form to suit its incision on the small stone ".

As for the ostraca from Samaria, found in 1910, the customary interpretation of their numerical signs is challenged. Since these numerical signs admittedly refer to regnal years, their reinterpretation involves a fresh identification of the king or kings referred to. Professor Yadin's reinterpretation of the signs, if it is right, means that they all denote either the ninth or tenth regnal year. In that case the king referred to is probably Menahem, rather than one of the kings of the house of Jehu. Professor Yadin further links the dates recorded on the ostraca with the once-for-all capital levy imposed by Menahem on the wealthiest men of his kingdom in 738 B.C. to enable him to make his " present " of a thousand silver talents to " Pul the king of Assyria ", i.e. Tiglath-pileser III (2 Kings xv, 19 f.). He finds support for this later dating in the fact that Dr. Birnbaum pronounces the writing on these ostraca to be nearer to that of the Lachish Letters than to that of the Mesha stele (*Samaria-Sebaste* III, p. 108, n. 49).

The *Illustrated London News* of November 26, 1960, contained a well-illustrated account of excavations at Eboda (modern 'Abdeh or 'Avdat), one of six city-ruins in the Negev. The city was evidently founded by the Nabataeans about the beginning of the 3rd century B.C., near the junction of two important roads, that from Elath to Jerusalem and that from Petra to Gaza. It was the opening of a modern road, from Beersheba to Elath, that gave a fresh impetus to archaeological work on the site. (Earlier work

had been carried on from time to time ever since the discovery of the site by Palmer in 1871; it was, for example, surveyed and described by C. L. Woolley and T. E. Lawrence in 1914, their findings being published in *The Wilderness of Zin*.) The Nabataean town was destroyed at the time of the Trajanic conquest in A.D. 106. Its importance revived under Diocletian (*c.* A.D. 298); in the course of reorganizing the defences of the Negev that emperor strengthened the acropolis of Eboda by a big retaining wall, and a new town sprang up alongside the Nabataean site. Still later a Byzantine settlement supplanted the Roman; it formed part of a large-scale agricultural development of the Negev, and existed well into the Arab period. The account is given by Professor M. Avi-Yonah and Mr. A. Negev.

While we are thinking about new roads, it is worthy of record that the new 200-mile road from Amman to Aqaba was officially opened by H.M. King Hussein of Jordan on November 10, 1960. This road, it is claimed, will cut down to six hours the time required by lorries to do the whole journey; previously it took three days (including rests). Visitors to Petra should also find the new road a great boon.

Volume VIII of the *Supplements to Vetus Testamentum*, published by Brill of Leiden in 1960, contains most of the papers read at the Third Congress of the International Organization for the Study of the Old Testament, which was held in Oxford from August 31 to September 5, 1959, under the presidency of Professor G. R. Driver. Many of the papers deal with subjects related to Palestine exploration. J. B. Pritchard discusses Gibeon's history in the light of the excavations which have taken place there under his direction; Martin Noth discusses the contribution of archaeology to the history of Israel. Various aspects of Qumrân study are dealt with by A. Dupont-Sommer, H. Bardtke and J. Strugnell. There are articles on two other very important manuscripts: F. Pérez Castro writes on the Samaritan "Book of Abisha'" (he was able to secure the first complete photograph of this composite manuscript in 1952), with special reference to the cryptogram in which Abisha', the great-grandson of Aaron, claims to have written it in the thirteenth year of Israel's sovereignty over Canaan; and A. Diez Macho writes on the recently discovered copy of the Palestinian Targum (the Vatican codex Neofiti I) which he is editing for publication. B. Mazar deals with the cities of the priests and Levites, E. Nielsen gives us some reflections on the history of the ark of the covenant, and M. Burrows keeps us up to date on the fortunes of the Revised Standard Version of the Old Testament.

The *Studiorum Novi Testamenti Societas*, which held its 1960 meeting in Aarhus, Denmark, devoted most of the sessions of that meeting to a consideration of the implications of the Qumrân discoveries for New

Testament study. It is to be hoped that now we shall hear no more of the absurd tale that New Testament students are inclined to boycott the Dead Sea Scrolls; in fact, as soon as it began to be realized that the Scrolls had a relevance for Christian beginnings as well as for the Old Testament text, New Testament scholars have been foremost in furthering their study. Mr. John Strugnell brought the Society up to date with a report on the publication of the Scrolls; Professor K. G. Kuhn, in a paper of quite exceptional importance, discussed the problems of the Epistles to the Ephesians and Colossians in the light of the Qumrân texts; Father J. A. Fitzmyer compared the use of explicit Old Testament quotations in the Qumrân texts and in the New Testament; Professor Morton Smith spoke of the new picture of first-century Judaism in the light of Qumrân; Principal Matthew Black dealt with the Qumrân sacred meal; and a symposium of scholars, under the chairmanship of Père P. Benoit, summed up the main conclusions of the meeting. Most of the papers will appear in due course in the Society's organ, *New Testament Studies*.

In " Notes and News " a year ago we drew attention to Father Milik's translation of the Copper Scroll from Qumrân Cave 3 which appears in the *Revue Biblique* for July, 1959. Since then an edition of the Hebrew text has been published by Mr. J. M. Allegro in *The Treasure of the Copper Scroll* (London: Routledge & Kegan Paul, 1960). The most important section of this volume presents a drawing of the twelve columns of inscription (a quite objective drawing, since the artist is no Hebraist), together with a transliteration and translation of the text and over three hundred notes on it. There are also chapters on the discovery, opening and decipherment of the scroll, and on the geographical and historical significance of the inscription. It now seems more probable than ever that the inscription is an inventory of temple treasure.

In accordance with the understanding established when the Palestine Archaeological Museum first placed its facilities at the disposal of the international team engaged on the assembling and deciphering of the Qumrân fragments, the " Scrollery " in the Museum was dismantled last summer. Most of the material has now been prepared for publication, and for the rest the work of preparation is well advanced. (This may not be so, however, with the material from Cave XI, and a good deal of the material from that cave is said to be still in the hands of Bedouin.) It is also reported that, by virtue of a new decision, Qumrân manuscripts will not be allowed to leave Jordan; those institutions which had paid in advance for manuscripts are to have their money refunded.

Under the auspices of the Palestine Exploration Fund, a course of lectures on the Natural Sciences and Bible was held during last autumn at

fortnightly intervals, the first five at Hinde Street and the sixth, by permission of the Directors, at the London Planetarium. It emphasized the mutual benefits of collaboration between experts in such fields as geography, botany, zoology, mineralogy and astronomy, and specialists in Biblical archaeology and Hebrew scholars. Professor David R. Amiran, of the Hebrew University, Jerusalem, set the scene with a beautifully illustrated description of the topographical and climatic regions of the Holy Land, and he showed how natural landscape can be transformed through man's neglect or resourcefulness. Mr. F. Nigel Hepper of the Royal Herbarium, Kew, discussed the problems connected with the identifications of some plants mentioned in the Bible, among them the " lily " (Anemone) and the " rose " (Narcissus, Nerium), and he showed pictures of hyssop, dove's dung, mandrake, mallow, mint, fitches and tares. Mr. George Cansdale had recently returned from a visit to Israel, where he travelled from the slopes of Mt. Hermon to the Gulf of Aqabah, photographing all he could see of the flora and fauna. He noted an increasing interest in the preservation of wild life among the Israeli people, and he said that more agriculture and a stricter observance of the grazing laws will preserve the natural habitat of indigenous animals and increase the necessary feeding ground for migratory birds. Country people were as strongly prejudiced against the photography of domestic animals as they were of their own families, so that even the destructive goat was herded off at the first sight of a camera. In consequence, Mr. Cansdale's most striking photographs were of snakes and vipers, which no one was anxious to protect.

Dr. W. Campbell Smith, lately Keeper of the Department of Mineralogy in the British Museum (Natural History), discussed the translation and interpretation of the gems mentioned in the description of the celestial Jerusalem (Revelation xxi) and of Aaron's breastplate (Exodus xxviii, xxxix). He considered that the stones of the breastplate may have been about an inch across, and said that if a sapphire were used for the purpose, it would have been an exceptional stone; lapis lazuli was a more likely identification. In the discussion which followed, it was made clear that various forms of chalcedony, and carnelian in particular, were almost the only semi-precious stones used to make the bead necklaces which have been found in excavations in Palestine.

Miss A. C. Western, of the Ashmolean Museum, Oxford, has examined wood samples from the British School of Archaeology in Jerusalem's excavations at Jericho. Microscopic investigation has shown that an exceptionally large plank of juniper wood was used to make the table found in an M.B. tomb. Miss Western discussed building timber, and its sources in Lebanon and elsewhere, edible fruit and nuts, and their place in the diet of the population, also the considerable trade in spices and incense which came to Palestine through southern Arabia, possibly from India or the Far East.

A fitting climax to the series was the special presentation by Mr. Leonard

W. Clarke, Senior Narrator at the London Planetarium. He showed his audience the stars in a London sky and then took them south to Palestine. He described what was known of time and the seasons among primitive peoples, the knowledge of stars and star-groups shown in the Bible, the influence of the Babylonian star-cult and poetic imagery from the stars. He suggested interpretations for several obscure passages in the scriptures, which had been worked out with the co-operation of Professor G. R. Driver.

The Chairman and Committee of the P.E.F. wish to express their gratitude to all the speakers who took part in the series and gave so much of their time to promote the interests of the fund.

We are glad to draw our readers' attention to an announcement by Micro Methods Limited with regard to rare books of photographs, illustrations and accounts of explorations which are now being made available in microfilm form. These are being reproduced with the co-operation of the Palestine Exploration Fund and present a unique picture of the actual investigation of the various facets of Palestine over the last few hundred years. Among the more important items are four volumes of photographs of the Palestine Exploration parties from 1865–77. Other works include *A Description of the East* by W. G. Rhind (1842), *Facsimiles of the Egyptian Relics* (1863), *La Terra Santa* by David Roberts (1843) and *Le Temple de Jerusalem* (1864). Full details of these and other works may be obtained from Micro Methods Limited, East Ardsley, Wakefield, Yorkshire, England.

We are grateful to Mr. C. N. Johns for writing the obituary note on the late Mr. J. H. Iliffe. Some of our readers will be interested to know that a memorial to Mr. Iliffe is taking shape in the form of a home for refugees at Zerka, Jordan, to be known as Iliffe House. Those who would like to have further information about this memorial will find the Rev. E. F. F. Bishop more than willing to supply it. Mr. Bishop's address is " Thabor ", Redstone Hill, Redhill, Surrey.

We are also grateful to the Right Rev. Mgr. J. M. T. Barton for writing about the late Père Vincent. Mgr. Barton acceded with alacrity to our request that he should do this; although he had written obituary notices of Père Vincent for other journals, he had by no means exhausted all that he wished to say about his former teacher.

STRUCTURE OF THE QASR BINT FAR'UN[1] A PRELIMINARY REVIEW

By G. R. H. Wright

The work which is embodied hereunder was made possible by the enlightened generosity of the Hon. Sir Steven Runciman, and was effected through the co-operation of the British School of Archaeology in Jerusalem.

Introduction

The outstanding built monument of Petra, the Qasr Bint Far'un, the walls of which stand in parts some 23m. high, has been studied and reported on essentially by Brünnow and Domaszewski[2], Kohl[3] and Wiegand[4]. The first named brought the monument into the light of learning, the second

[1] Works Commonly Cited in Abbreviated Form:

AJA: American Journal of Archaeology.

Albright: W. F. Albright, *The Archaeology of Palestine* (Pelican Book A199), London 1954.

Amy: R. Amy, " Temples à escaliers ", *Syria* XXVII, 1950, p. 82.

BASOR: Bulletin of the American Schools of Oriental Research.

B. & D.: R. E. Brünnow and A.v. Domaszewski, *Die Provincia Arabia*, Strassburg 1909, vol. I.

Beyer: H. W. Beyer, *Der Syrische Kirchenbau*, Berlin 1925.

Butler, *A. E.:* H. C. Butler, Part II of the *Publications of an American Archaeological Expedition to Syria in* 1899–1900. *Architecture and other Arts.* New York 1903.

Butler, *P. E.:* H. C. Butler, *Publications of the Princeton University Archaeological Expeditions in Syria in* 1904–1905 *and* 1909, Division II: *Ancient Architecture in Syria*, Leyden 1909.

Gerasa: *Gerasa. City of the Decapolis.* New Haven 1938.

Kennedy: Sir A. B. W. Kennedy, *Petra, Its History and Monuments.* London 1925.

Kohl.: H. Kohl, *Kasr Firaun in Petra.* Leipzig 1910.

RB: Revue Biblique.

Reuther: O. Reuther, *Parthian Architecture*, Chap. 23 in *A Survey of Persian Art*, vol. 1 text, Oxford 1938.

Wiegand: W. Bachman, C. Watzinger, Th. Wiegand, *Petra*, in *Wissenschaftliche Veröffentlichungen des Deutsch-Türkischen Denkmalschutz-Kommandos*, Heft 3, Berlin & Leipzig 1921.

Woolley: Sir C. L. Woolley, *A Forgotten Kingdom* (Pelican Book A261), London 1953.

[2] R. E. Brünnow and A. V. Domaszewski, *Die Provincia Arabia*, vol. 1, Strassburg 1904, pp. 175 ff. (description with drawings of the Temple) and pp. 307 ff. (photographs and references). Henceforth B. & D.

[3] H. Kohl, *Kasr Firaun in Petra*, Leipzig 1910. Henceforth Kohl.

[4] W. Bachman, C. Watzinger, Th. Wiegand, *Petra* (*Wissenschaftliche Veröffentlichungen des Deutsch-Türkischen Denkmalschutz-Kommandos*, Heft 3), Berlin and Leipzig 1921, pp. 56 ff. Henceforth Wiegand. Other references add nothing to those given above; B. & D. list the remarks of all previous visitors. A somewhat facile description of the Temple is also available in English: *v.* Sir A. B. W. Kennedy, *Petra, Its History and Monuments*, London 1925, p. 60.

devoted an intensive examination to the feature and the third added such observations as emerged from an extensive (but necessarily superficial) study of the general remains of Petra. The present work may be regarded as a supplement to Kohl, pending the (hoped for) clearance and reconstruction of the monument. Kohl states (*v.* p. 26): "Das Wertvollste des ganzen Bauwerkes ist für uns die Stuckdekoration". This enquiry attempts only an analysis of the structure as it may be deduced prior to clearance; all details of ornament are left for reference to Kohl except as some revision may be necessary to accommodate revealed structural necessities.

A. Description

1. *Siting and Layout* (*v.* fig. 1)

As generally at Petra, the siting of Qasr Bint Far'un is governed by the exigencies of the terrain. The axis of the building is set at right angles to the Wadi Musa so that by climbing the natural slope an impressive stepped

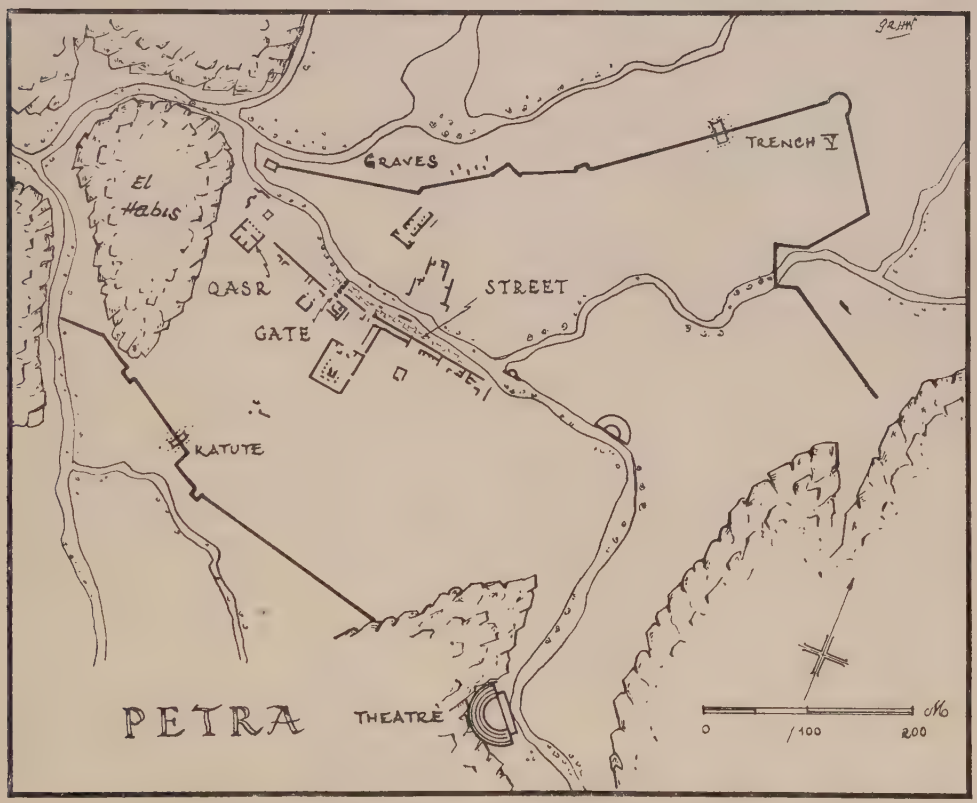


Fig. 1. Sketch plan showing site of Qasr Bint Far'un.

approach to the Holy of Holies is attained.[1] This being the case the prospect of the Temple on distant approach along the main street from the Sîq is most singular: being squarely that of a flank almost perfectly framed by the arched gateway. That this arch is in fact a gateway to a sanctuary peribolos has always been an attractive speculation[2]. Details made apparent by our clearance of the arch support this conjecture. A curb ran across the roadway at the footings of the arch and behind this were preserved the recesses to lodge heavy gates[3].

Passing the gate the way continued beside the Wadi some 200m. to where the Temple was set beneath the cliffs of El-Habis at the further end of the peribolos. A flanking wall lay to the south running from the gate complex to the line of the façade of the Temple. Some vestiges of a wall showing a circular exedra are still visible immediately beyond the Temple and these have been used by Wiegand (fig. 50, p. 258) to reconstruct an enclosed grand court or precinct in front of the Temple. Within this, on the axis of the Temple, is a square masonry structure in a very ruinous state which B. & D. (p. 178) interpreted as a blood altar; an interpretation which Wiegand was at some pains to refute (*v.* Wiegand, p. 57—he favoured a cistern).

In the absence of further excavations it is otiose to discuss the adjacent building complex. However, some sort of enclosure must have existed directly to the east of the building (*v.* Wiegand, fig. 50). This may perhaps throw some light on the singular fact that all the evidence shows a colonnade to exist on the east flank of the Temple (a fact subsequently verified by excavation), yet the lack of beam holes points to its absence on the other sides. If this colonnade were enclosed in the temenos, the differential would have some meaning; particularly when taken in conjunction with the tendency for Syrian buildings to have a single colonnade on one long side (see below, pp. 30 f.).

2. *Plan* (*v.* fig. 2)

(*a*) *General*

At close range the worshipper was confronted by a marble-revetted stepped podium[4] (now almost entirely stripped of its casing). Ascending this podium he passed through a façade (tetrastyle in antis, columns 2m. in lower diameter) and entered a broad forecourt (pronaos). High up in the wall on

[1] Mr. P. J. Parr has recently considered the possibility that this may be on the line of the old main entrance to the city from the north.

[2] Cf. B. & D., p. 178, " Den Eingang in den Tempelbezirk bildete ein dreifaches Tor ".

[3] *V.* P. J. Parr in *P.E.Q.*, 1960, p. 132 and pl. XXI B.

[4] The existence of this feature was placed beyond doubt by our clearance (see P. J. Parr, *P.E.Q.*, 1960, p. 133); cf. Kohl, p. 5, " Warscheinlich führten nur einige Stufen zu der Vorhalle empor, und der Tempel hatte kein Podium ".

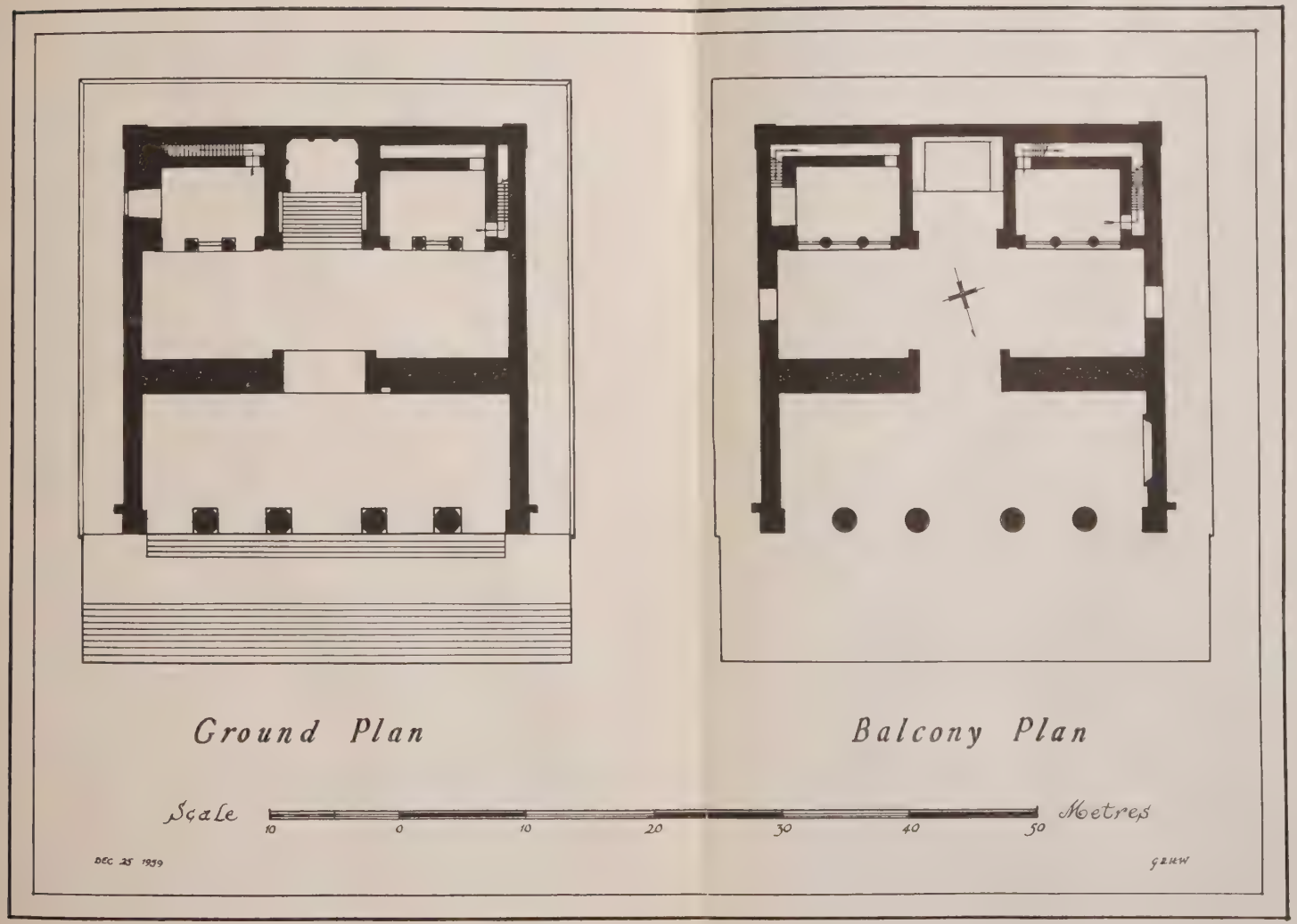
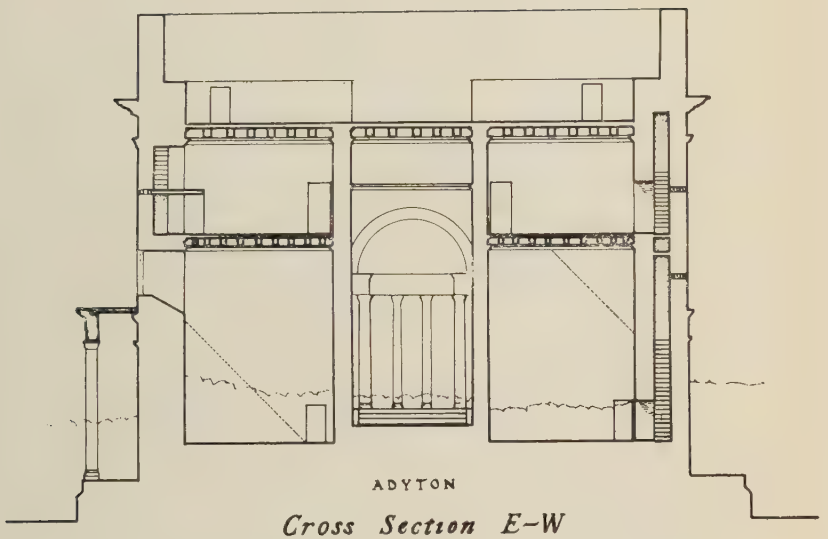
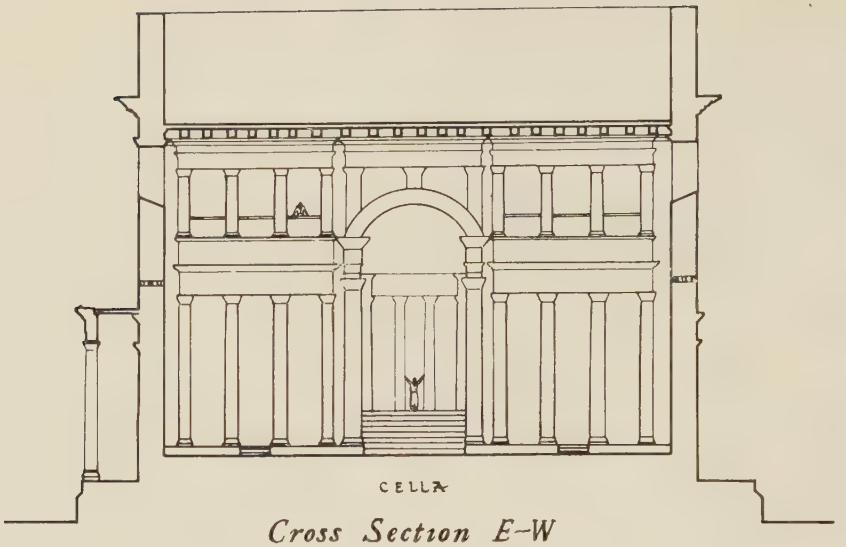


Fig. 2. Plan of Qasr Bint Far'un.



Cross Section E–W



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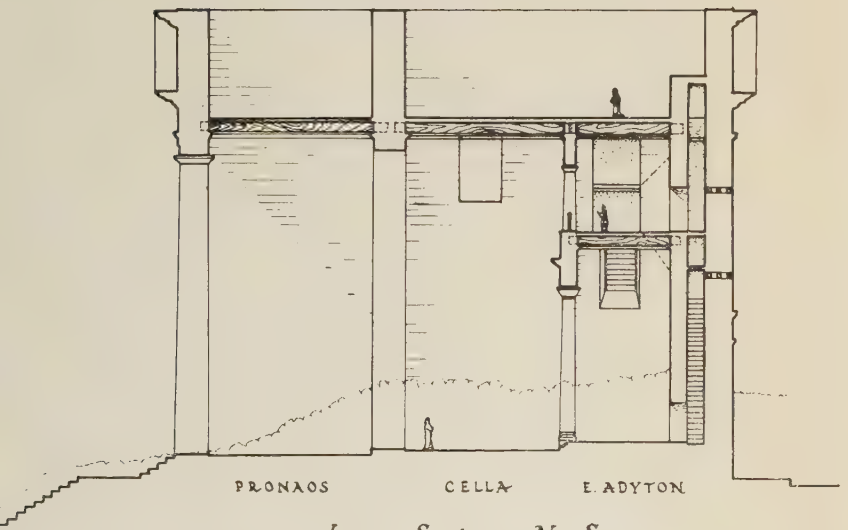
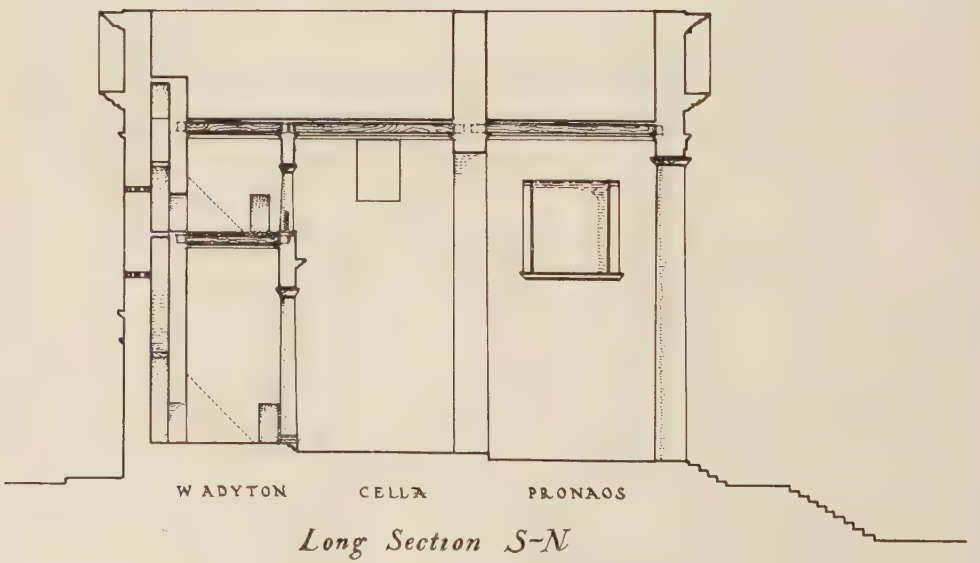


Long Section N–S



Long Section S–N

Scale of 10 0 10 20 30 40 50 *Metres*

1950

G·R·H·W.

Fig. 3. Sections of Qasr Bint Far'un.

the west face of this was a flat niche which presumably bore some decoration or inscription[1], while to the west of the door leading into the cella was a small niche to receive a cult statuette or the like[2]. The door itself was lofty. At present it shows an arched head, the crown of which is just below the ceiling, but doubtless originally there was a lintel for which this arch was a relief[3]. On passing through the door he entered a cella, again broader than long, and, like the forecourt, roofed over very high with a flat roof supported on wooden beams running north-south. Just under the ceiling, midway along the east wall was a window, and most probably there was a similar feature opposite in the west wall.

The worshipper now faced the triapsidal sanctuary (or adyton)—the two lateral compartments having a balcony floor to which access was given by stairs concealed in the bounding cavity walls. In the eastern chamber, at ground floor, was set a window with splayed jambs and inclined sill. This sanctuary presented an impressive colonnaded façade. The central apse formed the Holy of Holies, doubtless with a cult statue, and was approached again by further steps. To give additional space here the rear wall was reduced to a single leaf, and to reduce its load a relieving arch was thrown across it abutting on the two adjacent cavity walls.

(*b*) *Circulation* (*v.* figs. 4 and 5)

The circulation arrangements provided for the various parts of the adyton constitute one of the most striking of the surviving features of the building and may be here briefly explained. The enclosing walls of the two lateral " apses " are built as cavity walls and the cavity (*c.* 1m. wide) conceals the system of stairs[4].

Considering first the west apse, the system is very straightforward. Entrance to the stairs from ground-floor level is gained at the front (north) end of the west cavity wall[5]. An ascent is made towards the rear of the building at the standard 45° pitch, and in the south-west angle a quarter

[1] Cf. the similar feature in the Temple of Zeus at Kanawat, *v.* Butler, P. E., IIA.5, p. 347; Amy, p. 94, figs. 11 and 12.

[2] The Temple at Rabbah has two such niches, one on either side of the main entrance; cf. B. & D., p. 48, fig. 45.

[3] Note, however, the monumental arched entrances to the Temple at ed-Dmeir, *v.* Butler, A. E., p. 402, fig. 145.

[4] Broadly speaking buildings in this tradition, where access is provided by stairs to a flat terrace roof, may be divided into two classes, those where the stairs are housed in stair towers and those where the ascent is in the thickness of the walls; see p. 25 below.

[5] B. & D. and others following show the entrance axially on the cavity, but for this there is no evidence; besides it would be most illogical to be required to step out of the adyton into the cella in order to make use of stairs which are manifestly designed to serve the adyton. The origin of B. & D.'s supposition was doubtless the analogy presented by the library at Ephesus—but there the requirements of circulation were completely other (*v.* for convenience, D. S. Robertson, *A Handbook of Greek and Roman Architecture*, Cambridge 1954, p. 289).

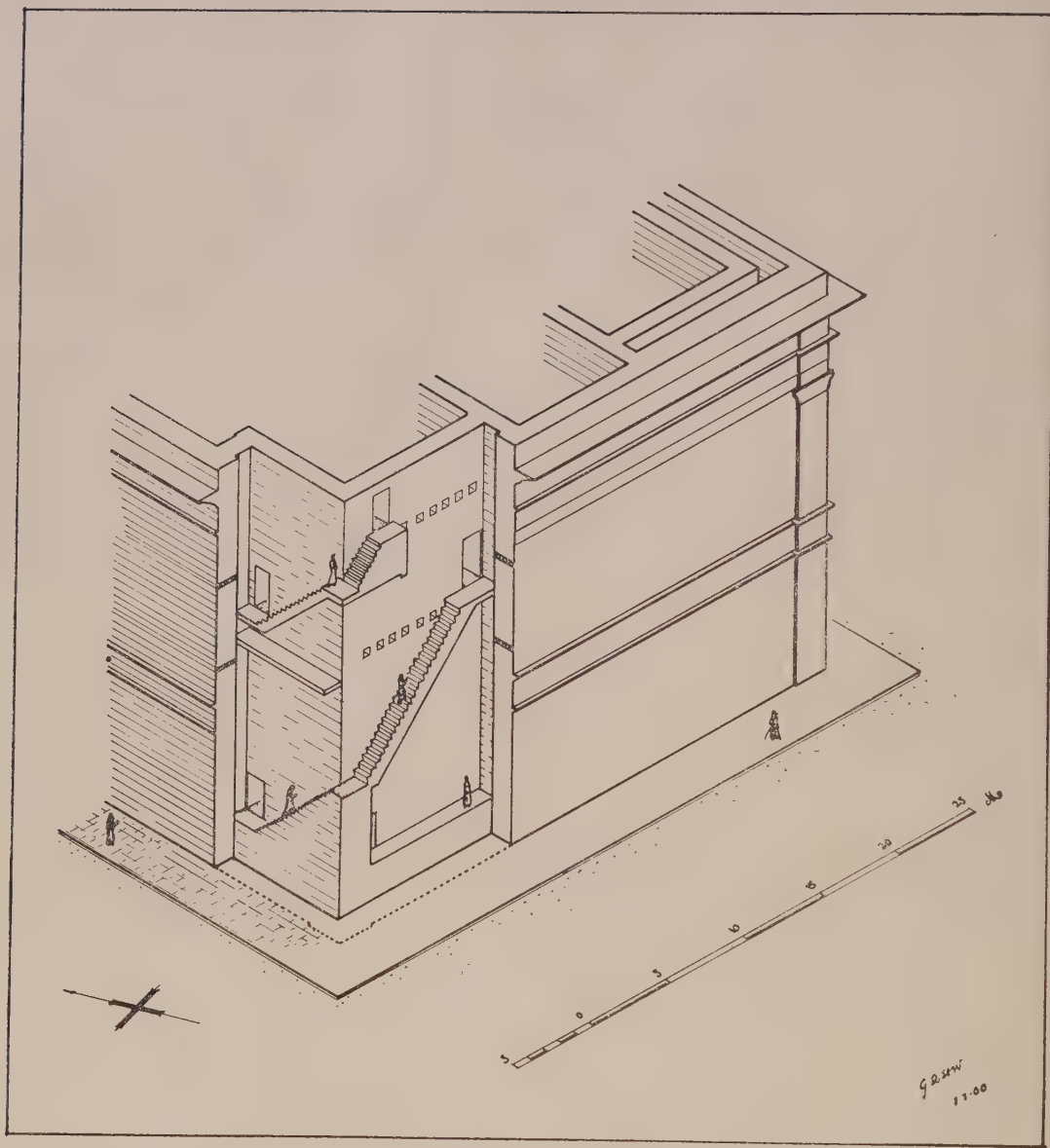


Fig. 4. Isometric of S.W. angle showing circulation.

landing is provided so that the ascent is continued in the rear wall, emerging at balcony level through a door at the east end of the wall. Beneath this flight there is thus formed a chamber in the wall cavity to which entrance is given by a door at ground level in the west end of the wall.

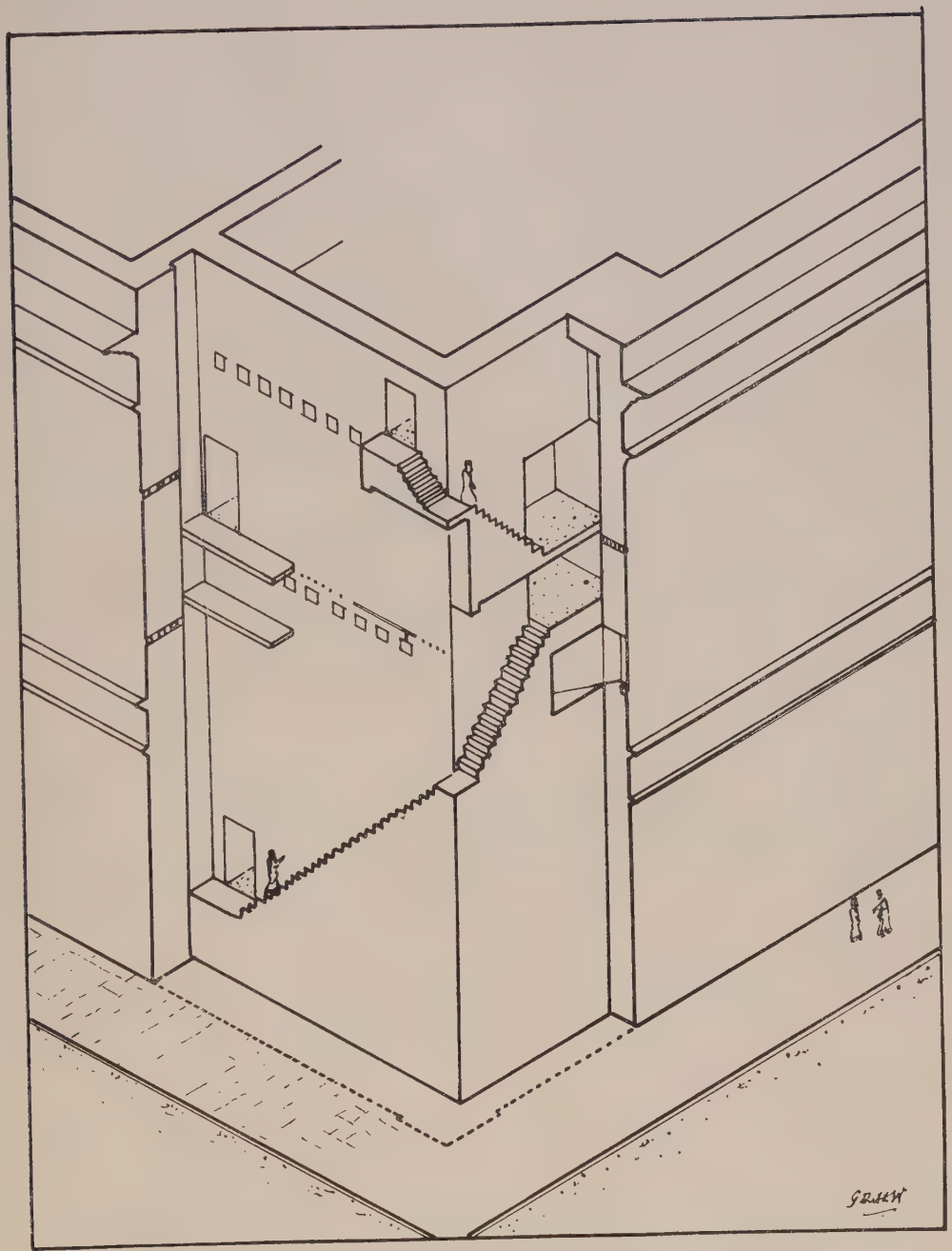


Fig. 5. Isometric of S.E. angle showing circulation.

The flight of steps is perfectly preserved and the steeply pitched soffite which forms the ceiling of this chamber is a most impressive spectacle.

To continue the ascent from balcony level, access is again obtained in the west wall by a door approximately above that on the ground floor. Again the flights are arranged similarly with a quarter landing at the south-west angle and an exit onto the terraced roof from the rear wall[1]. One could then walk across the roof and descend by the stairs serving the east apse. However, in describing these it will perhaps be better to give a parallel description commencing from the ground floor.

At ground-floor level in the eastern apse entrance to the stairs was made through a door in the rear wall set at its western extremity[2]. The stairs then mounted to a quarter landing at the south-west angle and emerged at balcony floor level through an embrasure set in the middle of the east wall—north of this embrasure the east wall was built solid. Within this embrasure, approximately at half ceiling height was set a landing. It is difficult to suggest exactly how this landing was reached from the balcony floor, but some broken blocks suggest that steep steps were set against the wall to the south of the embrasure. From the landing steps ascended in the cavity (these are now exposed through the collapse of the outer leaf of the wall) to a quarter landing at the south east angle and an exit onto the terrace roof, exactly as in the corresponding western stairs.

(*c*) *Evidence for restoration* (*v.* fig. 3)

Such is a brief description of the elements of the building inasmuch as they are certain. It perhaps may be now opportune to set out evidence for such reconstruction as has been involved.

The wall plan is, of course, certain, but since the floor of the building is encumbered by fall to a depth of several metres (given by dotted line on fig. 3) details of steps, etc., are conjectural and those shown are schematic only. The question of the existence of a peristyle has long been a moot point. The peculiar engaged piers set to the rear of the antae suggest that they are the responds to the initial columns of a colonnade[3]—which of course would then be circumferent. However, the beam lodgements above

[1] The details of this exit are not preserved and its possible nature is discussed below, *v.* pp. 31 f.

[2] This door is concealed from the interior of the building by the piled up fall in the adyton; the steps themselves, in the cavity of the rear wall, are covered by fallen wall blocks: thus the existence of this element has always been open to some doubt. However, a shaft was driven down to floor level exposing the door in its entirety and setting further suppositions at rest.

[3] Note the U-shaped cutting in the eastern pier which has been seen as a device to hang a door. Cf. Wiegand, p. 59, fig. 51A.

the upper of the medial cornices which are manifest on the east flank are patently absent on the other sides[1].

As has already been stated, this matter has been partly settled by exposing the north-east angle of the podium. This shows that on the east flank there was a peristyle *c.* 3m. broad and elements of the order were recovered[2]. There is, of course, nothing arising out of this which bears on the rear and west side, for the existence of a podium does not necessarily imply the existence of a peristyle.

For the restoration of the upper features of the building the evidence is almost entirely concentrated inside the south east angle (this evidence is presented in the drawing, fig. 6). Immediately recognizable are the provisions for the flooring of the balcony stage. In the rear wall regularly spaced beam lodgements completely pierced the inner leaf. These take wooden beams *c.* 40cm. in depth and are cut broader to allow for ease of lodging and to permit lateral play in the event of earthquake. The beams were set at *c.* 1m. centres and spanned from south to north, i.e. from the rear wall to the façade of the adyton. Here the seating was arranged as follows. Between the two antae (the easterly one of which can be clearly seen) were doubtless set two columns giving convenient spans. Then supported either on arches or architraves, a wall was built up, into the appropriate course of which were set the beams. Fortunately a block with such a lodgement is visible in the fall in front of the west apse. The relics of a cornice decorating this feature are also visible in the remains of the west apse.

The beams are given extra seating by a moulded corbel (which doubtless bore a stucco ornament) and this was carried around the two lateral walls. Here also at the level of the top of the beams a smaller but similar corbel was arranged to take the slabs from the wall to the terminal beams (this feature is not visible in the drawing but is very clear on the west—the hidden—wall).

[1] The possibility of a peristyle was admitted by Kohl (p. 9) and the matter was discussed at length by Wiegand (p. 55)—indeed it forms one of his major contributions. He adduces the existence of these engaged piers or rectangular pilasters as prime evidence and rightly describes the nature of the roofing on the east side, inferred from the beam lodgements. This must have been for all practical purposes flat and the question of drainage is a difficult one which is ignored by Wiegand. Wiegand affects to see the thickness of the roof revealed in a register of unstuccoed wall above the beam holes. Since there is evidence to show that the square pilaster stood three courses above the upper medial cornice level, there would have been an upstand above the roof along the front of the peristyle. Wiegand's main argument, however, in favour of the existence of a peristyle is stylistic: viz., the character of the stucco decoration of the wall is essentially that of an inner wall. Hence up to the height of this decoration the walls must be enclosed by a peristyle. But no explanation can be found for the absence of beam holes on the other two sides. More recently Amy (p. 108, n. 1) considered these arguments and the restitution of a peristyle doubtful.

[2] *V.* P. J. Parr, *P.E.Q.*, 1960, pl. XXIV A.

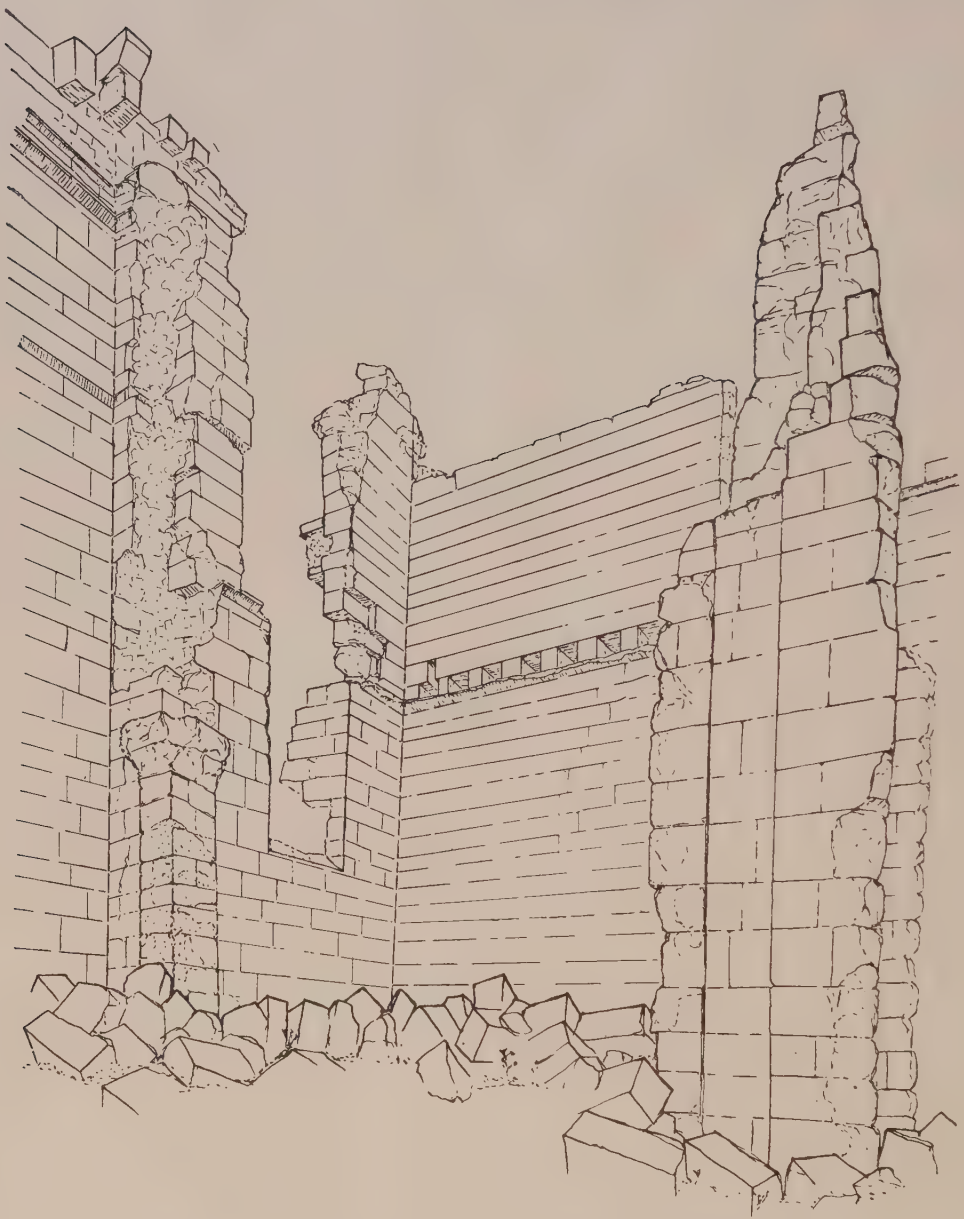


Fig. 6. Internal view of S.E. angle from cella door.

The whole arrangement was repeated for the main roof. Here no beam holes are visible in the rear wall (since this is not preserved to the required height) but the level is clearly given (and to be seen in the drawing) by the

double corbel arrangement in the east wall. The whole building was roofed at this level in three spans: from rear wall to adyton façade, thence covering the cella to the heavy cross wall, and thence covering the forecourt to the main façade.

Thus it is certain that the building was roofed with a heavy structural terrace roof, above which, to a greater or lesser extent, the lateral walls rose to provide a parapet (preserved to a height of *c.* 2·50m.). Above this nothing is certain and reconstruction depends entirely on analogy and falls to be discussed below.

The most noticeable feature visible in the drawing is the break in the east wall of the sanctuary which comprehends the window high up in the ground floor and the embrasure for the stairs at balcony level, supplemented by the collapse of the outer leaf of the cavity wall in this vicinity. The complex is somewhat puzzling to unravel and B. & D. interpreted it as two superimposed windows[1]. However, Kohl[2] was able to point out the improbability of this.

The details of the feature are here further described graphically in figs. 7 and 8. The window in the lower storey has splayed and rabbeted jambs[3], and was barred with metal rods, notwithstanding that it was set high up. It certainly offered no communication with the cavity (as shown by B. & D., figs. 201, 202), the remains of the south jamb being clearly visible. The remains of the sill are somewhat enigmatic but can only be interpreted as raking. Like the other window(s) it is set with sill (externally) at the level of a wood tie beam course, and its head at ceiling level[4]. Above this, in the upper storey, the exedra ran from floor to roof level[5]. That it was closed by the outside leaf of the cavity wall is inferred from the evidence of the north jamb where the external leaf continues to the line of breakage caused by the collapse of the angle[6]. There is thus no positive evidence for an aperture. The presence of a landing at about the wood tie beam course level is irrefutably established by the surviving steps, now exposed as corbelled out from the inner leaf of the cavity wall because of the collapse of the angle. The difficulty is to complete the system and find a means of

[1] *V.* B. & D., p. 175, "Belichtet war die Cella (*sic*) durch zwei Fenster unmittelbar unter dem Gesims der Ostwand; unter dem zweiten, südlichen Fenster liegt in der Höhe des ersten Stockwerkes ein drittes Fenster" (and shown thus in figs. 200, 201).

[2] *V.* Kohl, p. 14, "Ob ein ähnliches Fenster das obere Stockwerk erleuchtete, ist sehr zweifelhaft" (and he does not show one in this elevation, *v.* fig. 8, p. 9).

[3] It would seem, each jamb at a slightly different angle.

[4] The window(s) in the cella, however, seem to be plain and squarely cut.

[5] The precise details of its head are conjectural and are shown schematically in figs. 7 and 8.

[6] It is puzzling to determine why the thickness should be 1·50 m. (that of the cella wall) and how this accommodated with the 1·10 m. thickness of the outer leaf of the cavity wall at the angle.

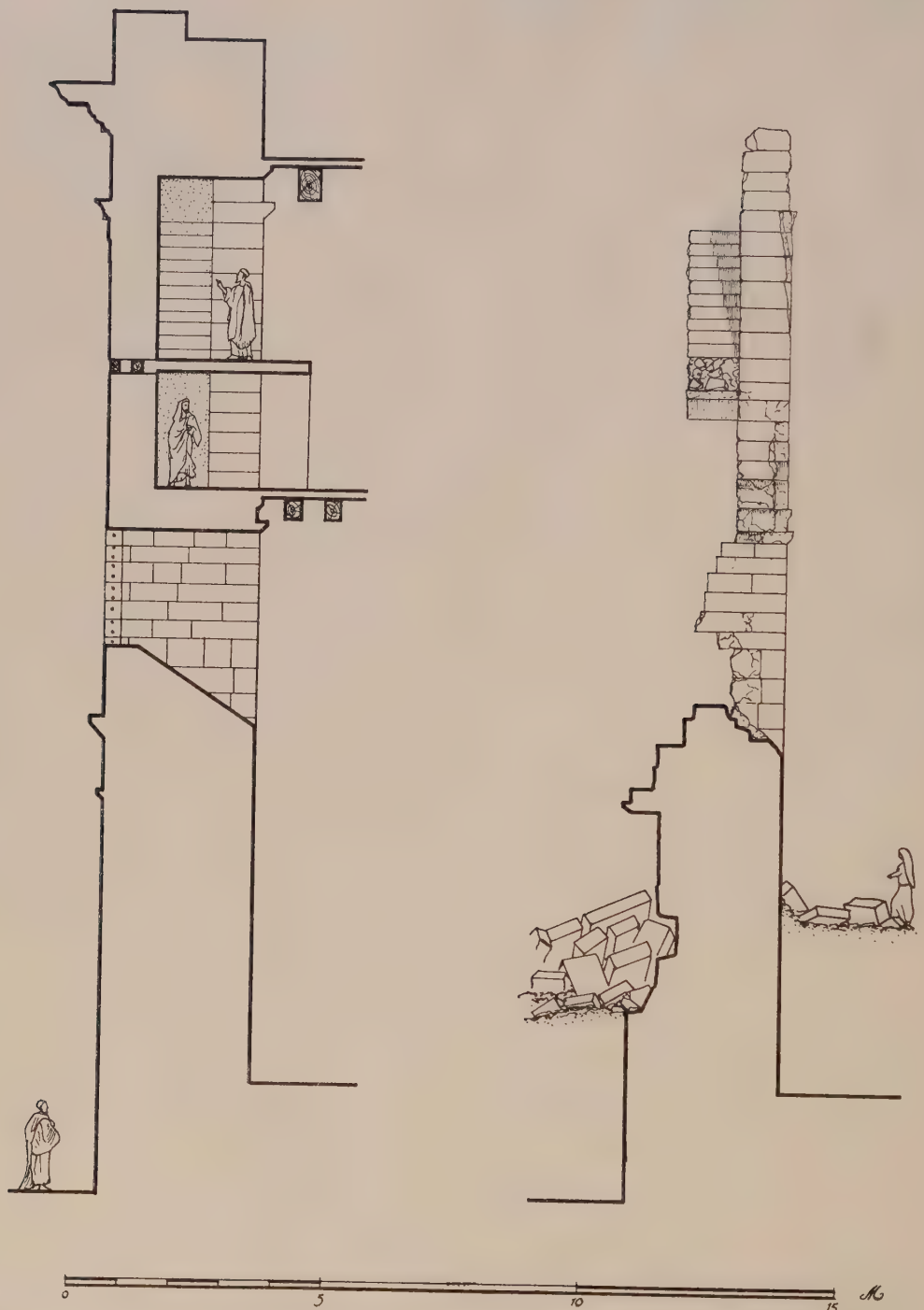


Fig. 7. Section through window and embrasure in east wall of adyton (looking south).

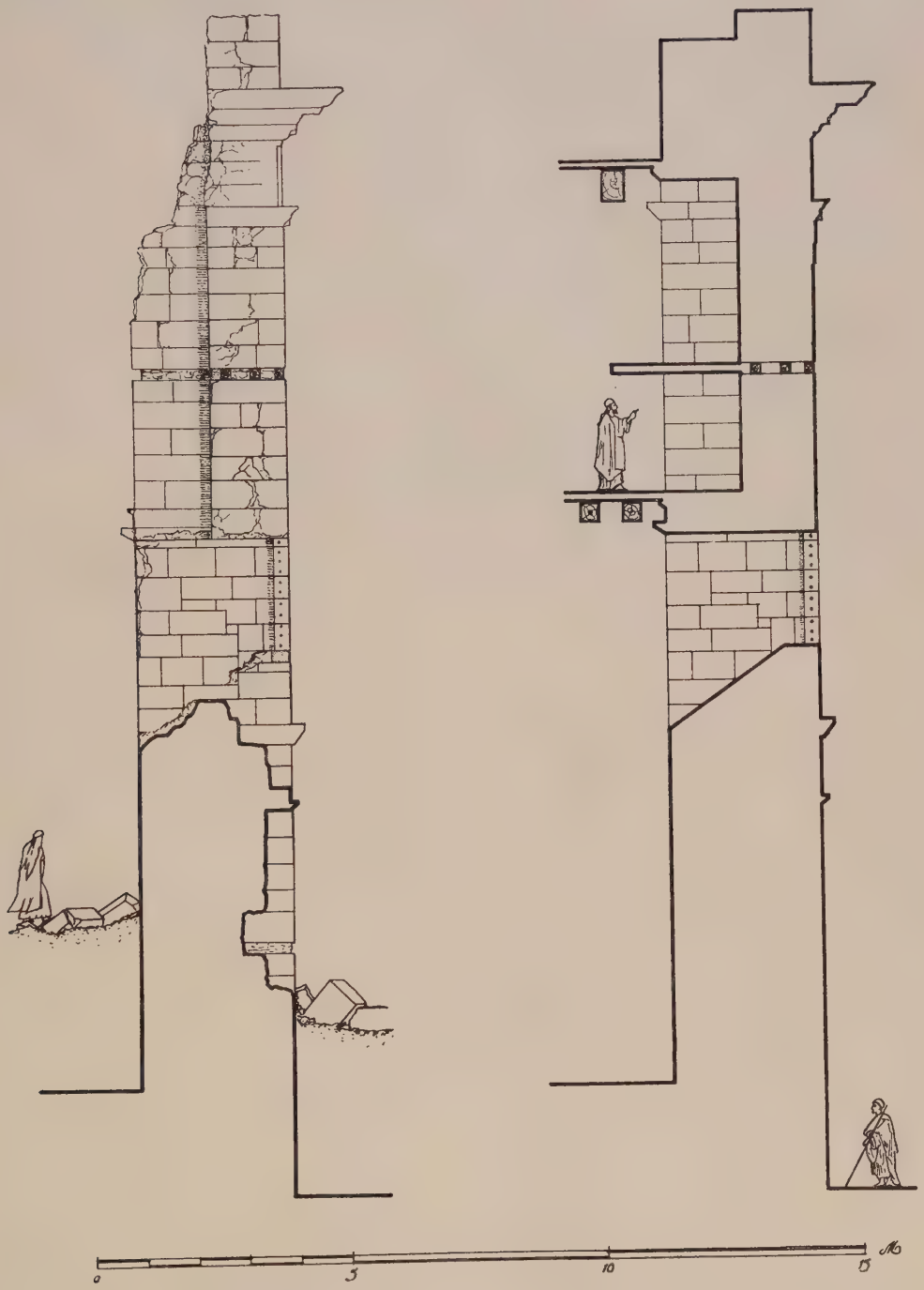


Fig. 8. Section through window and embrasure in east wall of adyton (looking north).

access to this landing from balcony floor level. The scarring of the masonry to the south of the embrasure (shown in fig. 6) suggests that the steps were affixed here (and are so shown in fig. 7); however, the pitch would be impossibly steep unless they returned around the rear wall.

3. *Details of construction*

(*a*) *Podium and foundations* (*v.* fig. 10)

In an endeavour to delimit the podium of the Temple and settle the precise nature of any peristyle, an area of the podium adjacent to the east anta was cleared and a narrow trench dug to expose the flank of the podium at the north east angle.

This clearance threw some light on the construction of the podium. As far as could be ascertained it was in the form of a rubble core retained by ashlar. It was clearly designed and constructed as two entities: the foundations proper of the Temple and the approach steps. These latter were added at a later stage of construction, of different masonry and completely revetted marble, some fragments of which were still in position, with

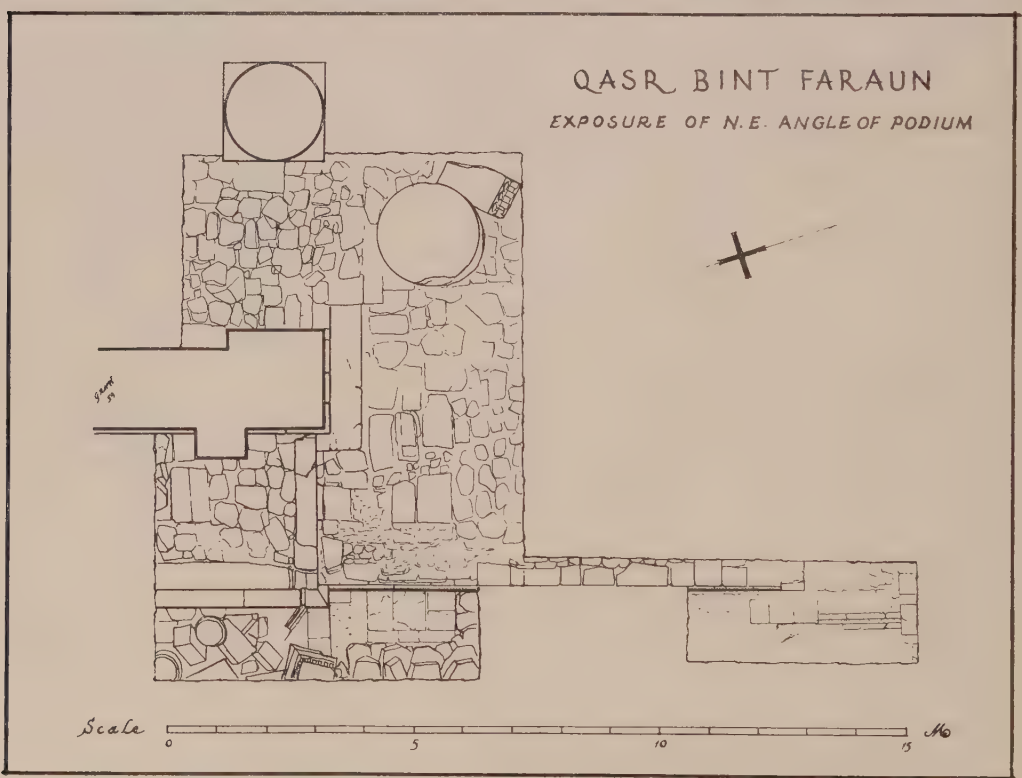


Fig. 10. Plan of clearance exposing N.E. angle of podium.

additional evidence in abundance of dowel holes and metal cramps. The distinction between the approach steps and the body of the podium was in some ways a corollary of the existence of a " temenos " wall on the line of the façade of the temple. Thus the steps were the only part of the podium publicly visible—on the east side that is, the disposition on the west is unknown —and were stopped at the jambs of a gate in the " temenos " wall. This was a problem of design which involved some nice adjustments.

The foundations of the Temple proper were (as revealed in the trench) retained by masonry which might almost be described as megalithic[1]. The die wall stood approximately 2·50m. high above the pavement with at 1·50m. above the pavement a simple chamfer moulding[2] projecting 35cm. It would seem that the massive masonry retaining wall returned beneath the line of the façade and the foundations of the steps were later laid against this. With the marble revetment *in situ*, the flank of the steps continued the line of the upper part of the podium die wall, leaving the lower moulding of the latter projecting beyond. This moulding returns the 30cm. into the flank of the steps—it perhaps being impossible to continue this horizontal moulding along a stepped descent[3]. In order to effect this nice coign and junction apparently recourse was had to some smaller blocks inset at the angle.

(*b*) *Masonry of Superstructure*

(i) *General*

The walls are built of ashlar, in part solid, in part, when the thickness permits, ashlar faced with a core of rubble and mortar. The technique is similar to that of the arched gate, and better opportunities for investigation afforded by this monument expand and corroborate some of the observations on the Qasr.

The material is the local coloured sandstone[4] and the blocks are set in mortar; no examples of dry masonry cramped in the Greek manner have been noted[5]. The coursing is not isodomic; it varies on an average from

[1] One block extended over 2·50 m. without termination. The completely different scale of the masonry of the podium brings sharply into focus the predilection in Syrian temples for constructing the podium in three courses, even though this necessitates megalithic masonry. This is, of course, most saliently illustrated at Baalbek. It has even been suggested that symbolism is at work here.

[2] Perhaps this is in an unfinished state.

[3] This return of the moulding of the podium into the die wall face is observed on analogous temples in Syria. Cf. Krencker and Zschietzschmann, *Römische Tempel in Syrien* (*Denkmäler Antiker Architectur*, Band 5), Berlin and Leipzig 1938, e.g. Kasr Naus, *v.* fig. 15, Hossn Soleiman, *v.* pl. 35. The clearance revealed no evidence of a balustrade.

[4] Wiegand affects to see a chronological significance in the choice of building material, *v.* p. 7: " In älterer Zeit wird der hellgelbe verwittert (Kasr, Prachtor, Zibb Firaun, Peripteral Tempel), in jüngerer Zeit wird auch stärker gefärbtes, streifiges und rotes Material nicht verschmäckt ".

[5] Cf. Wiegand, p. 7, speaking of Petra generally.

c. 40cm. to *c.* 60cm. in height, and although the bed joints are usually continuous along one stretch of walling, there are some exceptions to this. At coigns and junctions, however, it is by no means unusual for the coursing not to align. In such circumstances dressing *in situ* was necessary to effect a bond. However, at some junctions where it may be observed[1] this bonding is most imperfect, e.g. one course alone in thirteen being bonded. This was certainly advised and was an anti-earthquake device.

The masonry technique for a heavy wall is well shown in the broken east jamb of the cella door—and here particularly is the construction identical with that of the arched gate. The dressing of the facing blocks is such that they are ashlar dressed externally but rough or undressed on the inner surfaces; thus the mortared joints are less apparent externally. This is a mild version of the old Egyptian technique whereby a wall appears almost dry-jointed externally whereas internally it is largely mortar. The core is of random rubble liberally packed with mortar. The rubble, however, in large part recognizably conforms with the coursing and the construction is compartmentalized by through courses at vertical intervals of long, reasonably squared blocks. The whole arrangement strongly recalls the manner of Roman concrete construction, and is, of course, the emplecton of Vitruvius.

Where the wall is slighter (as the party wall between the central and western apse, the anta of which has been broken away), it may be seen again that only the outer faces of the blocks are dressed and the medial joint is packed out with small stones and mortar with a through course at intervals to bind the wall together.

Further, it may be noted that in all sections open to comparison it is apparent that the lower portions of the wall are more solidly built than the upper, a sophisticated feature.

(ii) *Use of timber*

There has been an extensive incorporation of timber into the fabric in order to afford as much tensile reinforcement as possible[2]. This has been effected in various ways. There are principally the main wood string courses

[1] E.g. that of the rear wall with the party wall between the central and eastern apse.

[2] The true purpose of this timber work was first recognized by Kohl (p. 3): " solche Holzeinlagen sind aber hier und überall, wo sie bei antiken Bauten auftreten, als ein traditionelles Überbleibsel des Fachwerkbaues mit Lehmziegeln aufzufassen und sollen der Mauer eine innere Verankerung geben ". Previous speculation had ranged from that of Robinson (*Biblical Researches in Palestine*, II, p. 135), who regarded them as grounds for fastening ornament, to B. & D. (p. 176), who suggested that they were devices to facilitate economic scaffolding.

For a similar usage in a neighbouring monument, *v.* Savignac and Horsfield, " Le Temple de Ramm ", *RB* **44**, 1935, p. 248: " Ces murs avaient été liés dans leurs fondations par quatre poutres en vue de leur donner plus de cohésion en cas de tremblement de terre ". For a recent review of the whole subject of timber reinforcing *v.* H. C. Thomson, " A Row of Cedar Beams ", *P.E.Q.*, 1960, p. 57.

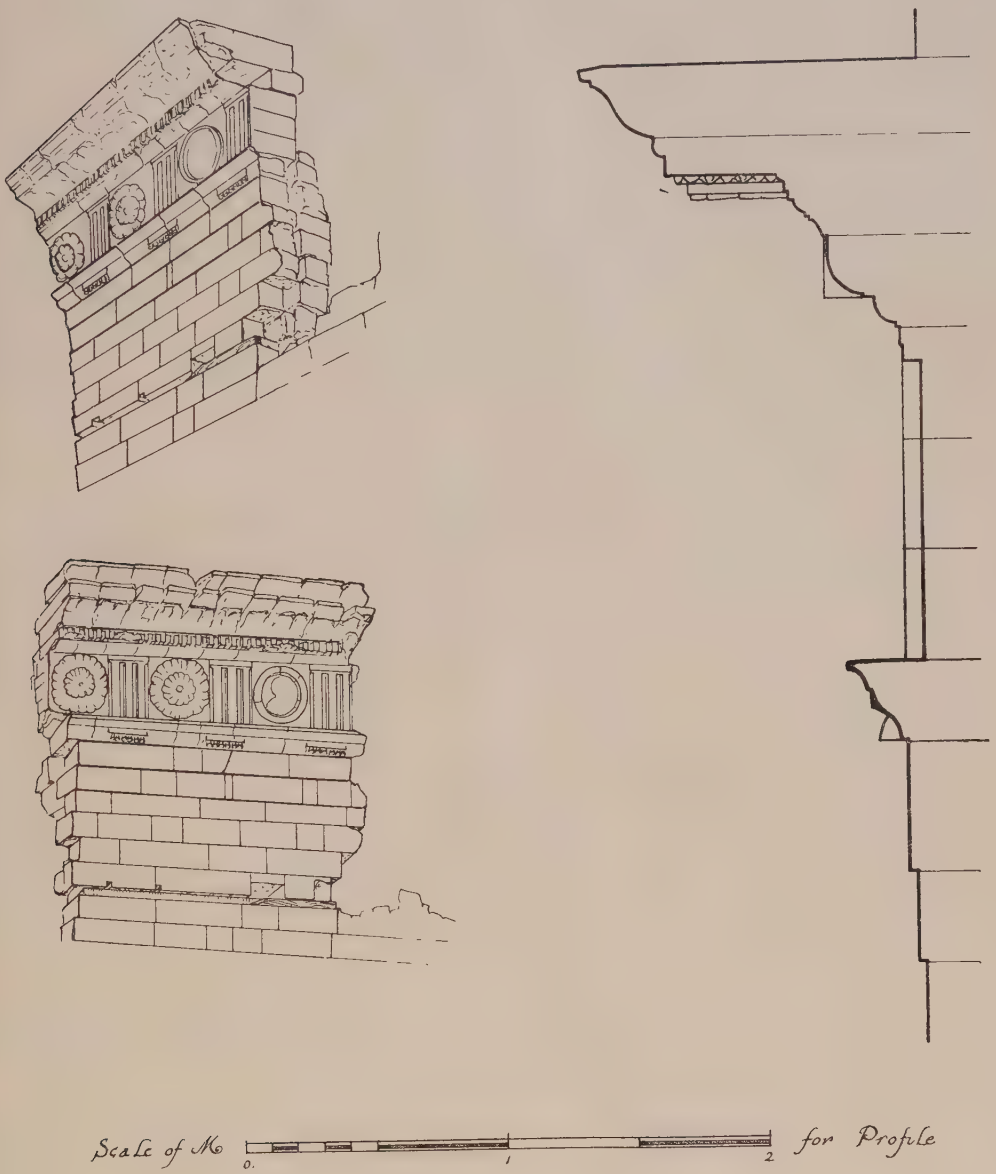


Fig. 9. Main Entablature (east wall): Restored Profile and Two Sketches.

running the length of the walls and around vulnerable angles. These have been constructed with two or three parallel balks (of square section) placed side by side, with the interstices packed up with rubble and mortar to form a regular course. In addition, transverse ties (of flat section) are incorporated at intervals across these courses. Furthermore bed joints have been packed in places with deals and sprigs of timber driven into damp mortar. The preservation of this timber in the dry climate of Petra is almost miraculous, but of course portions of the more exposed balks have rotted. The eventual result of this wooden reinforcement has thus been somewhat curious. The general state of preservation of the building is a monument to the wisdom of the architect in this respect, and several specific instances can be seen of fissures which would have led to collapse, still held together by wood insets. On the other hand the eventual rotting of portions of the timber has resulted in considerable local displacement and collapse.

(iii) *Orthostats* (*v.* pl. IA)

All published photographs of the Qasr Bint Far'un are at pains to illustrate the feature of the east wall at present ground level consisting of a row of square " orthostats " *c.* 1·60m. high, separated by narrow piers each built up from four small blocks. The veining of the sandstone, cut across the bedding, renders this feature startlingly prominent. Some of the " orthostats " have fallen away and it is manifest that the feature terminates some distance short of the northern extremity of the wall. The whole section of the wall has been badly eroded by wind-blown sand which at one point has completely pierced the wall.

This enigmatic construction which has puzzled most observant visitors[1] is none other than at basis an economic re-use of surplus materials. Some extremely large column drums which were to hand (the dimensions suggest that they were surplus to requirements in the façade) were sliced vertically, trimmed at the edges, and set into the wall with their curved face innermost, thus giving the external impression of an orthostat course. They would

[1] Kennedy (p. 60) disposed of them as fill*, mistakenly, as they are a facing. Kohl (p. 8) on the other hand wished to express them as decoration**, although he was puzzled as to why they should terminate abruptly, short of the north end of the wall. Perhaps he was influenced by the existence of large square panels in the stucco ornament at this level in the rear wall (*v.* Kohl, p. 17, fig. 15) which were more visible in his day than now. However, it is difficult to imagine why any form of stucco ornament should be thought to require the backing of a block of stone weighing several tons.

* " A peculiar arrangement of masonry (which originally must have been covered by the external shell) is seen in the base of the western (*sic*) wall ".

** " Auf einer niedrigen Schicht steht eine 1·60 m. in Höhe Orthostatenschicht, die nicht nur einen technischen Aufsdruck, sondern offenbar auch ein Dekorationsmotif darstellte. Warum sie nicht bis zu den Antenkopfen fortgeführt ist, sondern *ca.* 3 m. vorher abbricht und durch gewöhnliche Schichten ersetzt wird ist nicht verständlich " (*v.* pl. IIA, figs. 8 and 9).

have been stuccoed over in the same manner as the rest of the building and thus have only become visible with the subsequent erosion. The weakness of this construction is demonstrated by the readiness with which they have fallen out of their mortared sockets.

(*c*) *Cavity walls and stairs* (*v.* figs. 4 and 5)

The cavity walls with their internal stairs were designed as an entity. The stairs acted as ties and when this was considered insufficient, extra ties were provided in the form of stone deckings and perhaps timber or metal rods. The details were varied; sometimes the stairs were built up on a solid footing and sometimes they were constructed in the form of slabs spanning the cavity. In the west angle it is most probable that the first flight in the west wall was built solid. The return flight in the south wall was constructed by building a ramp of heavy slabs (*c.* 1·20m. long × 0·60m. broad × 0·30m. in depth), tailed into both walls to give a flush soffite; then on a bed of rubble and mortar the individual steps are laid to give a pitch of 45° with treads and risers *c.* 25cm. Ascending from the balcony floor, the flight in the west wall is built in a similar manner; beneath it, however, is a continuous decking which forms a ceiling to the stair chamber below. This decking is manifestly an extra tie. The return flight in the rear wall to the roof is not preserved and it is schematically restored on the lines of the upper flight in the east angle.

In the east angle the first flight of steps in the rear wall were certainly built solid and probably continued in some similar fashion in the short return within the east wall. This has fallen with the outer leaf and its presence is now marked only by the scarring of the masonry on the inner leaf. Extra ties at mid-height in the south wall are provided by two stone deckings, the upper at balcony floor level and the lower *c.* 2m. below. These do not extend the whole length of the chamber, but the level of the upper is continued by a series of recesses for rods which might have borne some light flooring. This is of interest because it would appear that a door gave onto this decking from the balcony. Such a corridor could have afforded no intercommunication, but it might have served some ritual purpose. A curious sort of " squint " may also be noticed cut above the most easterly beam lodgement. This may be seen also from the interior (*v.* fig. 6). The purpose of this is quite uncertain.

The upper flight of steps in the east wall is completely preserved in spite of the collapse of the outer leaf. Its construction is of interest. The rear wall is carried on solidly across the cavity for the total rise of the flight and provides a pillar supporting the topmost tread, and an additional bearing for intermediate supports. There is a horizontal lower decking and a second medial decking above which there is a rubble fill. Thus steps are supported from below in addition to other lateral bearings.

The remaining short flight in the rear wall is missing and is restored schematically in a similar fashion.

In view of the varied effect on these steps in the south-east angle, where a collapse of the outer leaf has occurred, an interesting question arises as to what degree of end fixity the architect intended for these stairs, and did this vary from stair to stair and from one side to another to suit structural requirements?

(*d*) *Crosswall*

Both on plan and *in situ* one of the most arresting features of the Qasr Bint Far'un is the front wall of the cella. The observer cannot fail to be impressed by the enormous solidity of this wall of *c.* 2·70m. breadth. There can be no doubt that it represents a purposeful " crosswall " construction. At the level of the uppermost of the wooden tie beam courses, there is visible in the broken west extremity of the wall the medial emplacement for a great balk of timber which must have further anchored the junction. The worth of this construction is demonstrated when conservation of the east wall is considered. This has canted outwards dangerously and immediately one wishes to anchor it to the crosswall by a steel joist, if possible, making use of the original emplacement.

The other feature of the wall which demands comment is the range of small arches set immediately above the main corbel course on which are laid the roofing beams. They are most striking viewed from the front (*v.* fig. 11); they seem to be cluttered up with rubble and although some similar features are discernible from the rear, it is difficult to appraise at first glance whether they are continuous throughout the thickness of the wall. In point of fact they are not.

Kohl refers to them as follows: " Above the cornice of the front wall of the cella is a continuous row of small vaulted niches, in which were set the closely spaced roofing joists "[1]. B. & D. describe them as relieving arches[2]. This sets forth two of the possible explanations which immediately come to mind. A third is that they are meant to be expressed as ornament. Before proceeding to examine the question further it is possible to dismiss Kohl's explanation. They are certainly not specifically designed as beam emplacements. As such they are unsuitable, unnecessarily elaborate and without parallels. A closer examination of the rear face of the wall suggests that

[1] *V.* Kohl, p. 10: " Über dem Gesims der Cella-front ist eine fortlaufende Reihe von kleinen überwölbeten Nischen (v. D. bezeichnet sie als Entlastungsbogen), in denen wahrscheinlich dicht gereiht die Deckbalken lagen ".

[2] *V.* B. & D., p. 175: " Uber der Rückwand des Pronaos sind auf der Photographie der Nordseite die kleinen Englastungsbogen gut erkennbar, die die Wand des Gabels trugen ".

(Photo: P. J. Parr)

A. East flank

(*Photo: P. J. Parr*)

B. Detail of "Orthostate" Course showing mortared emplacement and fallen column drum section.

(*Photo: P. J. Parr*)

B. Interior of Cella and Adyton, showing fall from other courses and walls.

(*Photo: P. J. Parr*)

A. South-east angle, showing collapse.

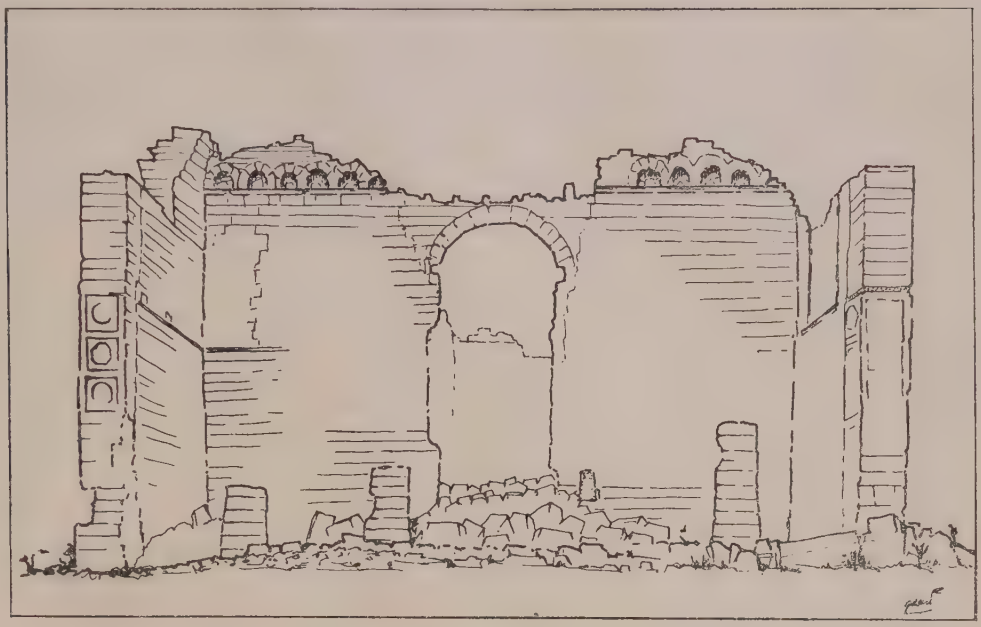


Fig. 11. Sketch of Façade showing arched niches.

basically B. & D.'s explanation is the correct one. Here, although the masonry is much more confused, it is possible to distinguish square emplacements for beams, arches of a size similar to those on the front and portions of much larger arches comprehending them. Thus it seems that in order to construct this portion of the wall (which may have been non-load-bearing) as strongly and lightly as possible, extensive use was made of relieving arches which could be infilled with light material.

The other possibility, that the arches were expressed as ornament, raises very fundamental issues which would be more appropriately dealt with below. However, to complete the enquiry, they may be considered summarily here. If the feature were ornamental, and in the present condition of the Temple they show indubitably as an ornament, then the pronaos was hypaethral. This is by no means an impossibility. On the other hand, if the pronaos were roofed then this wall must be pierced by a door; otherwise that portion of the roof would have been inaccessible. Furthermore, unless there were another roof at a higher level, no structural purpose can be seen in carrying this wall above the terrace.

Finally it must be mentioned that although the present lines of breakage strongly suggest that this portion of the wall was in the form of a gable (cf. Kohl, pl. VII; B. & D., fig. 339, p. 308), this appearance is purely fortuitous.

4. *Appearance in Elevation*[1] (*v.* fig. 3)

In attempting to indicate the general appearance of the building in elevation, it is immediately apparent how much the source of analogy must be drawn on. Indeed, it is somewhat salutary to realize how uncertain is the basic appearance of a building which is preserved even to this extent. Furthermore, as all the material for a detailed reconstruction is still lying where it has fallen, and awaits only the facilities for examination, it is not the juncture to elaborate in this connection.

Briefly the picture we have is that suggested by Kohl in his figs. 7 and 8. This comports with the evidence of the rupestrian monuments at Petra and with the contemporary buildings found from Syria to Arabia with which the Qasr is allied. It is that of a tall temple in antis mounted on a podium, the façade showing a pediment engaged to a parapet wall which surrounds the building to the height of the apex of the pediment. This pediment is non-functional and the roof is a flat terrace. On the lines of enquiry insituted by M. Amy, the stairs which gave access to the roof may terminate in a tower or towers, but this is entirely conjectural.

One or two points of detail alone may be noticed. The lateral spans of the façade are very considerable, and the central span is enormous—the former approached 6m. and the latter 8m. This immediately suggests that the entablature was broken over the central intercolumnation by an archivolt. However, as Amy sensibly infers (p. 95, n. 1), the criterion for this is not merely the absolute span but the proportion of the central to the lateral spans—which in this case is 4 : 3, by no means excessive (cf. Temple of Zeus at Kanawat where it is 3 : 2). In view of the fact that all spans are great and with the additional evidence of the builders' fondness for relieving arches, it is possible that the entablature was completely expressed and concealed masonry devices bore the load[2].

The final point to be mentioned is that of a possible pitched roof. This is so contrary to the tradition to which the temple belongs and so incongruous with the surviving remains that one is loath to entertain the prospect. It is only because of certain isolated points that the question needs to be raised. First there is the existence of a corbel block in the east wall (clearly seen in fig. 6) just in front of the sanctuary. This seems designed to take some sort of spar. Another flat roof at this height above the terrace would be absurd. On the other hand it is slender evidence on which to base an unnecessary pitched roof. Perhaps it is concerned with some local construction. A second

[1] For a discussion of the main entablature (*v.* fig. 9), see p. 37, n. 3.

[2] Cf. Butler, *A. E.*, p. 352: "There is no positive proof that there were arches above the central intercolumnations; but the increased width of these spaces, which measure about 5 m. on centres, would make it seem probable that there were arches, for the maximum span for an architrave seems to have been reached at Suweda, where the space is about 4 m. on centres".

fact with some bearing on the issue is that in the clearance of the podium some remains of roofing tiles were found.

Lastly there is a matter which demands much greater attention than it has hitherto received. How would the drainage of a flat roof surrounded by a parapet wall be effected? The entablature lacks a channelled and spouted sima, and in any event the terrace seems at a lower level than the cornice.

B. Commentary

To recapitulate: this building, located in the capital city of the Nabataeans, is essentially a tall temple in antis set on a podium. The plan, here almost exactly square[1], when conventionally divided into a pronaos, cella, and adyton gives a broad cella (and pronaos), i.e. with the main axis parallel to the façade. The adyton is tripartite. Substantial stairs ascend to what is most probably a flat terrace roof. There is certainly a colonnaded portico extending the length of one flank, which may or may not be carried around the other two sides of the temple, and/or may or may not be reflected in colonnades around the sides of an adjacent court. This portico is roofed at approximately half the height of the main building.

The conflation of a number of these elements is familiar in many edifices grouped about the ancient geographical division of Syria, some within Nabataean territory and some beyond. Surveys of the monuments are to be found in the works of Butler, B. & D. and Krencker; while they are subjected to comparative analysis by Amy and Beyer. From this mass of analogous material it is not impossible to draw some valid conclusions as to the Qasr Bint Far'un.

First let us consider the elements of the plan. The initial character is set by the broad cella and triply divided adyton[2]. Both these features can be demonstrated in ancient Syrian architecture. The excavations at Tell Atchana in the Hatay (ancient Alalakh)[3] revealed a series of temples built on the same site. These structures form a series comprehending the entire Bronze Age, and they invariably demonstrate a broad cella[4]. They have been considered by H. Frankfort and he rightly associates them with the

[1] Cf. "Viereckiger Tempel", es-Subha, *v.* B. & D. II, p. 167, fig. 1057; Butler, *P.E.*, IIA 5, p. 380, fig. 132.

[2] Cf. Kohl, p. 23: "die breitgelarte cella mit dem dreiteiligen Adyton".

[3] *V.* (for convenience) C. L. Woolley, *A Forgotten Kingdom*, London (Pelican Series A261).

[4] Cf. *op. cit.*, figs. 5, 8, 12, 16, 20, 21, 24, 25, and p. 58 (speaking of fig. 8, a temple contemporary with early dynastic times in Mesopotamia): . . . "we may perhaps see in it the prototype of the 'Hittite' Hilani".

tradition of the Beit Hilani[1], which is manifestly the next step in the transmission of this basic plan into classical times. The temple in level Ia presents " en poché " an impression strikingly reminiscent of the Qasr. The proportions are quite similar and there is a semblance of a tripartite adyton[2]. This feature is not easy to illustrate in prehistoric times. But that it is native to Syria is manifest from the great number of examples occurring there in classical times. These have been assembled by Beyer in his study of Syrian Church Buildings where, among the " Elements of Syrian Church Buildings ", he is quick to note the tripartite sanctuary and recognize its pagan origins[3]. He distinguishes two types of sanctuary plan, one where the internal lines of the sanctuary are apsidal and the other (to which the Qasr belongs) where they are square, with, in neither case, any external breaking out in the rear wall. He unhesitatingly postulates that this arrangement of tripartite adyton or sanctuary is an original Syrian feature and its occurrence elsewhere is a mark of Syrian influence.[4]

In connection with the Qasr Bint Far'un it is apposite to remark on the dispersion of this plan far southward into Arabian lands. Perhaps the most striking examples are in Ethiopia, e.g. the Sabaean temple in Jeha[5]. Nearer at hand in the northern Hedjaz is an interesting temple at Rawafa[6] showing a similar idiosyncrasy of plan, i.e. the two lateral chambers of the sanctuary seem constructionally emphasized while the central chamber seems minor and residual. This was dedicated *c.* A.D. 160 to Antoninus and Verus.

The remaining feature which is basic in determining the plan is the presence of a colonnade or peripteron. The evidence available on the site has been considered above and, as has been stated, all that it positively

[1] H. Frankfort, *The Art and Architecture of the Ancient Orient* (Pelican History of Art Series), London 1954. Cf. p. 162: " The interest lies in the fact that they represent stages in the architectural development which leads . . . to the Beit Hilani of North Syrian architecture in the first millennium B.C. ".

Frankfort's work on the Beit Hilani has been fundamental. He it was who convincingly disposed of the " Hittite " red herring and showed the form to be a North Syrian one: *v.* " The Origin of the Beit Hilani ", *Iraq* **14**, 1952, p. 120 (summarized in *Art and Architecture of the Ancient Orient*, pp. 167 ff.).

[2] *V.* Woolley, fig. 24.

[3] *V.* III, *Die Einzelformen des Syrischen Kirchenbaues und ihre Herkunft*, pp. 137 ff., 3, *Das dreiteilige Presbyterium.*

Butler was the first to perceive this connection (cf. " The Tychaion of es-Sanamen and the Plan of Early Churches in Syria ", *Revue Archéologique* **4**, 8, 1906, pp. 413 ff). and Crowfoot justly recognizes this: " There can be little doubt that Butler was right long ago in deriving the Christian plan of an apse between two chambers from early classical archetypes such as the buildings at Sanamen (Aere) and Slem (Selaima) "; *v.* p. 189 of his contribution on the Christian churches to *Gerasa, A City of the Decapolis.*

[4] *V.* Beyer, p. 145.

[5] *V.* (for convenience) Beyer, p. 145, fig. 93, from *Deutsche Aksumexpedition* II, pp. 79 ff., fig. 166.

[6] A convenient description may be found at pp. 107–8 in H. St. John Philby, *The Land of Midian*, London 1957.

indicates is a sort of colonnaded porch along the east flank of the building roofed at approximately half the height of the temple. In considering this feature, so unfamiliar in a classical context, the material assembled by Beyer is most illuminating.

Again while dealing with the elements of Syrian church buildings and their origin, he recognizes the feature of the single storied portico[1] which is subdivided into distinct sub-categories. The third of these, "The Colonnaded Side Portico", is the one which is relevant here and the discussion is so pertinent as to warrant a summary. Beyer states that it is common in Syria, where it is native. It derives from the Syrian dwelling house, which commonly consists of two double-storied rooms which adjoin on the shorter side. Before one of the long sides there is a narrow two storied porch or hall. It becomes obvious on inspection that the colonnades adjoining the side walls of churches are nothing other than those of the dwelling house; but since the church is not multi-floored, even though the height is at least that of the two-storied house, the portico naturally is only of a single storey and it will screen the wall of the church only to half its height. Furthermore, Beyer adduces instances to show that sometimes the colonnade runs along the other sides of the adjoining court or it may surround the church on as many sides as possible—both of which arrangements are possible at Petra.

The remaining features to be considered are more properly concerned with the appearance of the building in elevation. Here immediately arises the question of the roofing with which is involved that of the stairways built in the cavity walls of the adyton. It has been shown already that the balance of the evidence at the site indicates a flat terrace roof. In this connection the material collected by Amy[2] is pervasive and compelling.

The scope of his inquiry is abstracted from the study as follows. The concern is with temples where several staircases are to be considered the habitual means of access to the roofing. The temple of Dmeir, near Damascus, is examined first as it lacks only the roof covering, and then an attempt is made to restore the higher portions of six more southerly temples. These seven temples define, at the same time, the problem and the proposed solution. Twenty-one other temples (in Syria, Lebanon and Transjordan) are then examined in the light of the hypothesis. The end is to propose the reconstruction of partial or complete terrace roofs. It should be understood that the terraces only cover certain temples, and on the same site different systems of roofing have been used. Access to the terrace roof is given by several stairs, the wells or chambers being surmounted by towers arranged symmetrically. The temple of Dmeir (which is bi-facial) possesses four towers, but in other temples it is proposed to restore only two, either at the front

[1] *V.* Beyer, p. 156, 6, *Die Einstöckige Vorhalle*, c. *Der Seitliche Saulenportikus.*

[2] R. Amy, "Temples à escaliers", *Syria* **27**, 1950, p. 82.

angles (as at Slem) or at the rear angles (as at Sanamen). In considering the Qasr Bint Far'un (p. 108) it is suggested that the two stairs abut at one single square tower constructed over the central apse. However, from the measurements and investigations made by the writer this seems unlikely, and the more usual twin towers seem probable.

In such an analysis the gables of the façades are non-functional, and are only there to recall the usual form instead of being the normal support of a double pitched roof[1]. Generally the only restoration problem is the precise method of roofing the cella. Butler had some feeling for this trend of analysis and was well prepared to admit of non-functional gables. He, however, rather inclined to hypaethral cellas—somewhat needlessly—as at es-Sanamen (*v.* Butler, P. E., IIA $_5$, p. 316).

The monuments cited and recited by Amy and Beyer form a context into which the Qasr Bint Far'un squarely fits, the only slightly unusual feature of the latter being the arrangement of the steps concealed in the cavity walls of the adyton rather than in wells either at the front on either side of the entrance, or at the rear on either side of the apse[2]. This arrangement is, however, by no means unprecedented. Perhaps the best known example is the Library at Ephesus, of A.D. 115[3]. Here of course the cavity walls are properly functional in preserving the books from damp. Another well-known example is the altar in front of the Zeus temple at Baalbek[4]. Finally, most similar in feeling to Petra is the arrangement at the so called Philippeion at es-Subha[5].

Having set the Qasr Bint Far'un in its broad historical and geographical background, let us now set down some of the temples considered in previously mentioned works with which it appears to be related most closely. For example (in the southern part of modern Syria):

Atil, A.D. 151 (Butler, *A.E.*, p. 343; B. & D., II, pp. 102–105)
Mshenef, A.D. 171 (*v.* Butler, *A.E.*, p. 346)
Tychaeon at es-Sanamen, A.D. 191 (*v.* Butler, *P.E.*, IIA $_5$, p. 317)
Slem (*v.* Butler, *P.E.*, IIA $_5$, p. 357)

[1] In these buildings it is always possible that the façade was crowned horizontally by running the parapet wall completely round the building to form a sort of attic in a way made familiar by the rock cut façades at Petra. Cf. C. Watzinger, *Denkmäler Palästinas*, Leipzig 1935, Vol. II, p. 44: "Zu dem oberen Abschluss der Front in Form einer Attika, die durch das flache Dach bedingt ist, vergleiche man die heute noch aufrecht stehende Fassade der dachgedeckten Tempels der Kasr Fir'un in Petra".

[2] *V.* Amy, p. 109: "Le mur du fond et une partie des murs latéraux sont doublés pour loger de longues volées d'escaliers qui montent derrière les chapelles. Il est vraisemblable que l'architecte, ne voulant pas encombrer ou réduire celle-ci, n'a pas su trouver d'autre solution".

[3] *V.* (for convenience) D. S. Robertson, *A Handbook of Greek and Roman Architecture*, Cambridge 1954.

[4] *V.* Amy, p. 122.

[5] *V.* Butler, *P. E.*, IIA, p. 380, fig. 132; B. & D., p. 167, fig. 1057.

Temple of Zeus at Kanawat, *c.* A.D. 150–200 (*v.* Butler, *A.E.*, pp. 351–4; *P.E.*, IIA 5, p. 347; B. & D., II, pp. 134–7)

Dmeir, A.D. 149 (*v.* Butler, *A.E.*, p. 400; B. & D., II, pp. 181–186)

and, for geographical contiguity, in Transjordan:

The temple of Artemis at Jerash, *c.* A.D. 150 (*v. Gerasa*, pp. 125–138, Plan XXI)

The temple of Zeus at Jerash, A.D. 163 (*v. Gerasa*, Plan XXVI).

The date of construction of many of these buildings is given by epigraphical evidence and the concatenation is striking. This lesson has been well read by Albright[1]. "While the Hellenistic cities of the Decapolis, east of Jordan, had been in existence since the first century or two after Alexander's conquest, it was not until Trajan's annexation of the Nabatene and his creation of Provincia Arabia (A.D. 106) that the expansion of these cities began in earnest . . . The Antonine period in which these splendid temples were built was in many respects the most flourishing age of pagan Syria and Palestine". In the absence of further detailed evidence on the site, which can only be provided by excavation, we may say unhesitatingly that this was the period of the construction of the Qasr Bint Far'un[2].

The Qasr Bint Far'un is not only of great importance and interest in this tradition of building to which it has been related; it is the commanding monument in the capital city of the Nabataeans. It remains to be seen what light it may throw on a specific Nabataean architecture and conversely what light this may throw on it.

The merit of Nabataean construction has long been recognized: "As builders the Nabataeans were unrivalled in the art of stone cutting and dressing; as architects they showed extraordinary ability in planning large schemes, in arranging masses, and accommodating buildings or groups of structures to given sites"[3]. Little attention, however, has been devoted to the origins and development of their principles of design. The material is not altogether lacking.

Considering the geographical area of Petra, the explorations of Glueck revealed traces of extensive temple building. "There is a large group of temples which can be listed with certainty in the south half of the Nabataean kingdom alone . . . almost every important Nabataean village and town in the area was marked during the heyday of Nabataean power and wealth by a temple dedicated to fertility gods"[4].

[1] *V.* W. F. Albright, *The Archaeology of Palestine*, London 1954, p. 165.

[2] Cf. the early traveller, G. A. Visconti, *Diaro di uno Viaggio in Arabia Petraea* (1865), Turin 1872: "Evidentemente è un monumento dell' época Romana la quala è rappresentata qui in Petra dello stile degli Antonini".

[3] *V.* Butler, *P. E.*, General Preface to Division II.

[4] *V.* N. Glueck, "The Nabataean Temple at Qasr Rabbah", *AJA*, 1939, p. 381.

There are relatively few, however, of which informative and detailed plans have been published. Let us select those which are situated closest to Petra. We have, proceeding northwards:

Khirbet et-Tannur[1], situated on a striking eminence within the Wadi Hesa.

Dhat Ras[2] and Mhayy[3], on the northern verge of the Hesa.

Qasr Rabbah[4], midway between the Hesa and the Mojib.

To the south we have the temple in the Wadi Ramm[5].

Considering this group, we find they resolve immediately into three types of plan. The small temple at Dhat Ras has some affinities with the Qasr Bint Far'un. It shows a trim rectangular plan, and although its main axis is longitudinal, niches in the side walls give the cella a broad development. The steps are inconspicuously disposed in the rear adjacent to the apse. This links up with es-Sanamen and has a striking similarity with the later Philippeion at es-Subha. The temples at Qasr Rabbah and Mhayy (their interior details are uncertain or lacking) present an identical plan—a very broad shallow building with two great towers projecting at the front angles to house stairs, with columns set between the towers. This is precisely the type of the Beit Hilani[6]. The temple at Khirbet et-Tannur, its plan accurately determined by excavations, is quite other, and with it, in spite of ambiguities, stands the temple in Ramm. Here we have the striking plan of a square cella, completely enclosed by outer walls so that it is entirely surrounded by a corridor—a box within a box. This is the plan which, because of the excavations of de Vogüe and Butler, has become widely known as characteristic of Nabataean architecture. In the Lejja (a volcanic area within the southern part of modern Syria, it is found expressed in two of the temples of the great sanctuary at Si' (Seeia)[7], at Sur[8] and at Sahr[9].

[1] *V.* N. Glueck, "A Newly Discovered Nabataean Temple of Atargatis and Hadad at Khirbet et-Tannur, Transjordania, *AJA*, 1937, p. 361. There are several other preliminary reports in the *Bulletin* and *Annual of the American Schools of Oriental Research*, but with the lapse of a quarter of a century there is still no definitive report of the monument nor one single published plan. The information presented here was in part obtained from the records of the Rockefeller Museum Library in Jerusalem.

[2] *V.* B. & D., pp. 61–69; *RB*, **45**, 1936, p. 249.

[3] *V.* B. & D., pp. 70–74, fig. 67.

[4] *V.* B. & D., pp. 48–51, fig. 35; *AJA*, 1939, p. 381.

[5] *V.* Savignac and Horsefield, "Le Temple de Ramm", *RB* **44**, 1935, p. 245.

[6] Cf. Amy, p. 97: "Ces monuments semblent se rattacher, par la cella plus large que longue et par leur façade, à la très ancienne tradition du Beit Hilani hittite".

[7] *V.* Butler, *P. E.*, IIA 5, p. 369.

[8] *V.* Butler, *P. E.*, IIA 5, pp. 4–8.

[9] *V.* Butler, *P. E.*, IIA 5, p. 441.

Considered in retrospect it will be seen that differences between the first two types of plan are not essential. For example, the temple at Slem, although the main axis is here longitudinal, has what can be described as projecting towers at the angles of the façade with columns set between them. It is possible to think of both types deriving from the same line of development which has been sketched out as going back to the old Syrian temples at Alalakh. Perhaps the first may be regarded as being the result of hellenizing influence. The logical conclusion of this hellenizing process would then be found in the fully peristylar temples in the momentous buildings at Baalbek, at Palmyra, and at Jerash[1].

There can be, however, no doubt that the third type of plan represents something very different, and an inquiry into its occurrence is illuminating. We come on it immediately in Hatra. And now we can best serve our purpose by summarizing the excellent treatment given by O. Reuther in his chapter on Parthian architecture contributed to *A Survey of Persian Art*[2]. He unhesitatingly classifies this type as "characteristically Iranian". He refers to the temple on the top of Kuh-I-Khawaja, of similar plan, which is consecrated to the Zoroastrian cult as shown by the presence of a fire altar, thus confirming that the Hatra building is a temple. "This temple plan, the square room with the surrounding corridor, has already appeared in the Achaemenid period in a building excavated at Susa (the Apadana, where there were four central columns to support ceiling beams). It is noteworthy that the same temple plan with four columns defining the corners of a square appears in Nabataean Syria in the sanctuaries of Ba'al Shamin and Dusharas at Si' in the Hauran, which was built in 33 B.C.; in the approximately contemporary temple in Sur, and in the temple at Sahr in the Lejja which has been assigned to the first century A.D.; and all three are so very close to the Susa Apadana that there must have been some relation. It has been suggested that the Susa building and the Nabataean temples of this type must all have been derived from a common source, the unknown old Syrian

[1] *V.* Amy, p. 102, where he does well to point out the pains taken to keep the two elements discrete: "Je crois que la raison essentielle est de laisser apparaître la cella au-dessus du péristyle qui n'est plus qu'un élément placé là pour satisfaire au nouveau goût du décor de l'héllénisme occidental, mais qui ne doit pas masquer la forme originelle d'une cella syrienne . . . Il y a deux éléments distincts: une cella pourvue d'escaliers et couverte en terrasse correspondant à une ancienne tradition, et un péristyle correspondant à une architecture nouvelle". He also notes acutely that this distinction finds expression in some of the rock-cut façades of Petra where the lower order is Hellenized while the upper remains oriental.

[2] *V.* A. U. Pope, ed., *A Survey of Persian Art*, vol. I, text, Oxford 1938, p. 411.

architecture, but it is more probable that the antecedent of the Nabataean temples was Persian "[1].

Now the history of the building at the Nabataean shrines in southern Syria begins in the latter part of the first century B.C. and extends into the first century A.D. The date of Khirbet et-Tannur, as announced in the preliminary notices of the excavation, is somewhat similar. "We would date the Nabataean temple at Khirbet et-Tannur at the latest in the first part of the 1st century A.D." (*AJA*, 1937, p. 384). Elsewhere in analysing its three building periods a history of *c.* 25 B.C.–A.D. 125 is given (*v. BASOR*, 67, p. 6, and records in the Palestine Museum files)[2]. Finally, the temple at Ramm, for all its difficulty of interpretation, seems to date from not later than the first part of the second century A.D.[3]. Thus we have a uniform result that Nabataean temples with a plan that is most probably derived from a Persian antecedent flourish from the end of the first century B.C. to the beginning of the second century A.D.; whereas temples which are based on a Syrian plan more or less hellenized, come into vogue at A.D. 150 and are built freely in the prosperous Antonine periods[4].

This seems to accord well with what might be deduced from historical considerations. Phraates' victory over Antiochus Sidetes in 129 B.C. established the power of Parthia, yet culturally the new empire remained essentially Hellenistic. However, in time the inevitable nationalist reaction did appear and it does seem that a change from Hellenistic to Iranian sympathies

[1] In support of the latter conjecture we may adduce the fact that "the old Syrian architecture" is now less unknown than formerly, cf. Frankfort, *AAAO*, p. 163; "In architecture we can trace a continuity between the second and first millennium in Syria which in most other fields is lost", and nowhere do we find examples of the plan here under discussion. The emergence of this type of plan in Bactria (*c.* A.D. 100–150) has been strikingly demonstrated by the excavations of M. Schlumberger on the acropolis of the modern Surkh Khotal in Afghanistan. He unhesitatingly relates the plan to an Achaemenian antecedent. "Ajoutons que le plan du Temple fournit la même indication [as the structure]: avec sa cella tetrastyle carrée, entourée sur trois cotés par un couloir de circomambulation, il est très analogue à celui d'un Temple fouillé jadis par Dieulafoy près de Suse" (*v.* Schlumberger, "Descendants non-Mediterranéens de l'art grec", *Syria* **37** [1960], p. 145).

[2] Albright (p. 165), in passing, condemns Glueck's dating of the later phases and seeks to place them a century later. This would require substantial argument which, as far as I know, has never been adduced.

[3] *V. RB* **44**, 1935, p. 278: ". . . la première moitié du second siècle de notre ère . . . représente la plus convenable époque architecturale". The difficulty centres round the immuring of carefully finished columns in a poorly finished wall to produce the effect of an engaged order (*v.* p. 251). Miss D. Kirkbride, who has recently re-examined the monument, suggests (verbally) different building periods.

[4] Cf. Butler, *A. E.*, p. 342 (speaking of the architecture of the Hauran in Roman times): ". . . it represented the mere extension of the art of one portion of Syria to another portion—from Greek Syria to Semitic Syria—a process which Rome with her wonderful power of organization and amalgamation accomplished as doubtless no other power could . . . It is difficult to tell when the classic style was first revived in the Hauran under Roman patronage. The earliest monument with an inscription on it dates from the reign of the Emperor Antoninus Pius in the year A.D. 151".

is evident in the architecture[1]. It was at this period that our first surviving examples of Nabataean sacred architecture were constructed[2] and they naturally reflect this virile influence. However, following the conquests of Trajan and the development of commerce under Hadrian, during the full prosperity of the Antonine period the effect of the Roman intervention to save the Hellenistic Syrian tradition became obvious in this aspect as in all others[3].

[1] Cf. Reuther, pp. 411–413.

[2] It would seem likely that the predecessors of these shrines were open-air rock-cut high places as at Petra. For the connection of the Temple with a terrace roof on which stands an altar, and the tradition of the " High Place ", *v.* R. Dussaud, " Temples et cultes de la triade héliopolitaine à Ba'albek ", *Syria* **23–24**, 1942–43, p. 37.

[3] Additional Note on the Main Entablature (*v.* fig. 9): Owing to weathering and inaccessibility it is impossible to produce complete measured drawings but the following description is exhaustive.

The cornice (height *c.* 102 cm.) is composed of three oversailing courses weighted down by the parapet wall. The frieze (height *c.* 127 cm.) in turn consists of three courses, and again the " architrave " is made out of three courses, a taenia and two fasciae, although the fasciae (except on the façade) are only distinguishable from the upper courses of the wall by their slight projection.

Considering the cornice: the uppermost course (28 cm.) bears only a tall cyma recta. The second course (39 cm.) shows the broad horizontal soffite of the corona, once ornamented although in every instance this carved ornament has spalled off the fissile stone. Fortunately some fragments were recovered which showed the soffite to have borne modillons. The modillons were decorated with anthemia and the viae with some wreath-like form of floral ornament*. Beneath this the bed mould appears to commence with two cavetti struck at 45° (but this is nowhere certain due to weathering). The lowest course (36 cm.) shows the main dentillated part of the bed mould—the dentils cut on the popular quadrantal backing. This enrichment actually seems only present on the façade.

The triglyph frieze forms a very effective feature. The triglyphs are bold and completely rectilinear as may be expected, with no suggestion of arching at the head of the glyphs. The metopes are decorated with a large rose with a double row of petals completely filling the field, and this is rendered with a pleasing vigour. Two of the metopes show only an annular framing. This at first appears to be the framework from which the details of the previously described decorations have fallen away—and it is indeed possible that this is the case. However, with appropriate lighting a strong suggestion of the lines of defaced busts is revealed and this seems a more probable explanation of the original decoration**.

The taenia of the architrave is very heavy in the form of an upper cavetto and a lower cyma recta. However, where the guttae occur, a small panel transforms the cyma recta moulding into a fascia and cavetto, thus forming a sort of episodic regula from which the guttae emerge. This is a most pleasing and sophisticated detail (it was pardonably missed by Kohl, p. 6: " Tropfen, in den Bauch des Kyma, nicht an eine Regula gesetzt"). The guttae themselves are of the expanding, jutting forward variety beloved by the renaissance. Below this two courses, each projecting slightly beyond the lower, simulate the effect of the normal architrave with the fasciae customary of the period.

* From fragmentary survivals, it would seem that the ornament was similar to that preserved in the very similar entablature at ed-Dmeir (*v.* Butler, *A. E.*, II, fig. 45—but not shown in detail).

** Cf. the metope on the fragment found near the west temple at Kanawat. Here there is a well-preserved head in high relief set in a disk (*v.* Butler, *A. E.*, II, p. 326). Also the frieze block from Khirbet et-Tannur (*v. AJA* 1937, fig. 4, facing p. 366, where it is described) which shows two rosettes identical with those at Petra and a " mutilated relief of the goddess " in the three metopes.

Alternatively there are many parallels for a wreath-like form alternating with rosettes in the metopes of the more notable tombs about Jerusalem.

TWO NEW HEBREW SEALS AND THEIR ICONOGRAPHIC BACKGROUND[1]

By Raphael Giveon

I. A Seal from the Valley of Aijalon

This little scaraboid (pl. IIIa) was found in summer 1959 during agricultural operations in an orchard of the village of Revadim, in the northern Shephelah, at point 132131. As there are no ruins, no large number of potsherds, no indication of a Tell in the whole district, it has to be assumed that the seal was accidentally dropped by its owner, or, alternatively, that it has been washed down by one of the many rivulets in winter-time, from a site at an appreciable distance, not to be identified any more.

The seal is 1·7 cm. long and 1·5 cm. broad, made of steatite. The inscription לאבא is easily recognizable: "belonging to Abba". Below the inscription we have a scene, executed in a half-schematic manner and not very well preserved. On the left we see a person, facing the centre of the lower register and presenting an object to the central figure. His other arm is well behind his body. The central figure seems to be sitting, right hand pointing to its mouth, left arm behind. It is impossible to make out on what this figure is sitting; it may be an elaborate podium, a chair, or plants. On the right we have an additional figure, in a position similar to the first one, one hand raised in adoration.

We have before us a scene of adoration directed at the Sun-child. The Sun-child appears frequently in the ivory carvings of the first millennium B.C. at Nimrud[2], at Arslan Tash[3], where there were found 19 ivory panels with the subject, belonging, as it seems, to one single bit of furniture, and

[1] The two seals from Israel are published here by kind permission of Mr. N. Idlin of Revadim settlement and Mr. M. Rogbi of the modern village of Dan, owners of the seals. Dr. R. D. Barnett, Keeper of the Department of Western Asiatic Antiquities in the British Museum, drew my attention to the Ba'al-Ḥn seal in the Museum's collection and kindly allowed me to publish it. M. A. Parrot, Conservateur en chef of the Department of Oriental Antiquities at the Louvre was good enough to enable me to handle the Ba'al Nathan seal and to have it re-photographed for publication.

[2] R. D. Barnett, *A Catalogue of the Nimrud Ivories*, London 1957, c. 51 (pl. VIII).

[3] F. Thureau-Dangin et alii, *Arslan Tash*, Paris 1931, pl. XIX, 1–2.

further south, at Samaria[1]. The Amathus bowl[2] from Cyprus and many seals, for instance one from Sardinia[3], show one adoring figure only before the child. The prototype of these representations is the scene of adoration in Egyptian art, showing two divinities adoring the child. These may be male or female; in Phoenician art we have male genii in adoration. In one of the Samaria ivories we have Harachtē offering a small sculpture of Maat, the goddess of truth, to the child. Of this bas-relief only one half is preserved; the child sits on a lotus flower, flagellum in hand. On the Revadim seal, too, Maat is being presented to the child; the peculiar sitting position, knees high up, is indicative of that. As far as style is concerned this seal is closely approaching the extreme schematic treatment on Palestinian and Phoenician seals of the 7th century but preserves a certain amount of naturalistic treatment in according a certain " fulness " to the figures. The inscription is in an inverted position, an impression made with this seal would have to be read with the figures standing on their heads.

The name " Abba " is not very rare on seals of Palestine and neighbouring countries in the first millenium. A seal which P. Vincent describes[4] has *one* letter inverted, the first Aleph. This bone seal, reputed to come from Ascalon, shows two people standing beside an altar, one lifting an object, which may be a vessel, the other raising his right hand in adoration. Above their heads are a crescent and a disk respectively. Reifenberg[5] publishes a seal, coming probably from Jerusalem with the inscription

לאבא
בוני

which latter word could be read בונה as well. Galling[6] quotes a seal from the Berlin Museum, said to come from Beirut, with the inscription לאבא showing a griffin with an Egyptian crown. The name Abba, frequent in Mishnaic literature, does not occur in the Biblical period, the nearest approach being אבי which occurs with the name of Hiram of Tyre in 2 Chron. ii, 12 and again in the form אביו in 2 Chron. iv, 16. In both cases the person in question seems to be well versed in the typical arts of Phoenicia. In 2 Kings xviii, 2 the name אבי is a shortening for אביה the mother of Hezekiah.

[1] J. W. Crowfoot and G. M. Crowfoot, *Early Ivories from Samaria*, London, 1938, Frontispiece.

[2] J. L. Myres, *Journal of Hellenic Studies*, **53**, 1933, pp. 25–39.

[3] G. Ebers, " Antichità Sarde ", *Annali dell'-Istituto di Correspondencia archeologica*, Roma, **55**, 1883, pl. F.I.

[4] H. Vincent, " Notes d'Épigraphie Palestinienne ", *Revue Biblique*, **12**, 1903, p. 606.

[5] A. Reifenberg, " Ancient Hebrew Seals ", *PEQ*, **74**, 1942, pl. XIV, 6.

[6] K. Galling, " Beschriftete Bildsiegel des ersten Jahrtausendes v. Chr. vornehmlich aus Syrien und Palaestina ", *Zeitschrift des Deutschen Palaestinavereins*, **64**, 1941, p. 121.

II. A Seal from the Region of Dan

Found in the built-up area of Dan settlement, which is near Tel el-Kadi, the Biblical Dan, it seems likely that this seal (pl. IIIB) originates from near-by Wadi el-Assal. Earth used for filling in road work was brought from this spot, which is about 800m. east of modern Dan. The seal is 20 mm. long and 15 mm. broad, made of carneol. At both ends of the long axis are little conical holes, showing that the seal was fitted into a ring.

The greater part of the surface of the seal is taken up by a four-winged figure striding towards the right. This figure is holding bow-like objects in both hands and wears the Phoenician form of the Egyptian double crown. One leg is completely covered down to the calf by the skirt, the other leg is entirely visible through the very thin tissue of the skirt. A thin line from the calf of the one leg to the other indicates a veil-like garment. Thin garments like these are usual in Egypt. Genii with *one* leg uncovered reflect an Assyrian tradition.

The four-winged genius, of Mitannian derivation, is well known in Assyrian art. A seal in the collection of the Bibliothèque Nationale in Paris[1] is an early example. From Hazor, which is not very far from Dan, we have a four-winged genius holding a " tree of life " on a carved ivory handle dated to the end of the 9th or beginning of the 8th century B.C.[2] We find it on a bronze bowl from Curium[3] (Cyprus), killing a lion, and on a bowl from Nimrud[4] sitting on a lotus flower: thereby it establishes a link with the motive of the seal from Revadim just described.

The Sun-child lost its mythological connotations, which gave it its place in Egyptian iconography, when it entered Phoenicia, and became " the child predestinated to be a god from birth ". In a similar manner there occurred a change of meaning when the four-winged genius became a frequent motive in Phoenician art. For this change we have some literary testimony in the Greek fragments of Sanchoniathon as quoted by Philo from Byblos. According to Eissfeldt, Sanchoniathon is to be dated to the 7th century. He came from Beirut[5]. In his account of Phoenician religion he states Ἰλὸν τὸν καὶ Κρόνον, " El who is Kronos "[6]. Eusebius[7] identifies Kronos with Bel. Now it is interesting to note that the same Sanchoniathon remarks that Kronos=El of the Phoenicians had four wings[8].

[1] L. Delaporte, *Catalogue des Cylindres orientaux de la Bibliothèque Nationale*, Paris 1910, No. 473.

[2] Y. Yadin, et alii, *Hazor I*, Jerusalem 1958, pl. CLI.

[3] G. Perrot and Ch. Chipiez, *Histoire d'Art dans l'Antiquité*, III, 1885, fig. 552.

[4] R. D. Barnett, "The Nimrud Ivories and the Art of the Phoenicians ", *Iraq*, **2**, 1935, p. 206.

[5] O. Eissfeldt, *Ras Schamra und Sanchunjaton*, Halle 1939.

[6] C. Orelli (ed.), *Sanchoniathonis . . . Fragmenta . . .*, Leipzig 1826, p. 26.

[7] Eusebius, *Praep. Evangel.*, IX, 17.

[8] C. Orelli, *op. cit.*, p. 38.

This change of meaning of the four-winged genius can be followed up one further step. A similarity of sound has led fairly early to a confusion between the god Kronos and a personification of Time, χρόνος. We find an instance of this, for example, in Plutarch's book on Isis and Osiris[1], ὥσπερ Ἕλληνες Κρόνον ἀλληγοροῦσι τὸν χρόνον. This gave to the four wings a new, symbolic, meaning: instead of the all-pervading presence of El, who moves, with his wings, tirelessly from place to place, it reminded mortals of the quick passage of time.

The inscription on the Dan seal reads לעזא, "for Aza". The same inscription appears on a Phoenician scaraboid quoted by Perrot and Chipiez[2]. This seal is very similar in type to our specimen. Its genius is two-winged, most probably, as Perrot and Chipiez have pointed out, for lack of space. The name Uzza is fairly frequent in the Bible: Uzzah is one of the two persons charged with bringing the ark back from the land of the Philistines. In chapter 6 of the first book of Samuel he is called Uzza as well as Uzzah. A man named Uzza is amongst the Nethinim whose families returned from captivity (Ezra, ii, 49, Nehemiah vii, 51). There is an Uza amongst the persons named on the Samaria Ostraka of the 8th century[3]. The name of King Uzziah appears in several forms, in the late form עוזיא (1 Chron. xi, 44) and in the shortened version עזי. The name has the fundamental meaning "God is my strength".

The connection between Dan and the Phoenician cities of the coast is well attested in the Bible and existed even before the conquest of Canaanite Laish by the tribe of Dan (Judges xviii, 7). The new seal from the region of Dan confirms this fact and demonstrates the elements of Egyptian and Mesopotamian art which went into the formation of Phoenician iconography. Additional seals of the same region and the same period may be of help in understanding some of the features of the Dan seal.

The best known of similar seals is the Ba'al Nathan seal in the Louvre (pl. IV.) Found in Tello (Lagash) it shows a four-winged figure advancing towards the right, with the same division by two parallel lines which can be seen on the Aza seal. The inscription of the Tello-seal reads בעל נתן Ba'al Nathan. There is no indication that one or both legs are covered; two eyes, similar to Egyptian hieroglyphic representation of the eye, appear at each side of the monster; in these features the Tello seal is more Egyptian than the Dan seal. The figure is holding two snakes. This evokes the well known snake worship in Palestine and Phoenicia. Furthermore this fact serves to interpret the curious objects in the hands of the Dan genius: they must be snakes, too. A certain preoccupation with snakes and snake worship

[1] G. Parthey (ed.), *Ueber Isis und Osiris*, Berlin 1850, p. 54.

[2] G. Perrot and Ch. Chipiez, *Histoire d'Art dans l'Antiquité*, III, fig. 458.

[3] G. A. Reisner and C. S. Fisher, *Harvard Excavations at Samaria*, I, 1924, p. 233 (No. 1).

may possibly be hinted at in Jacob's blessing of Dan: "Dan shall be a serpent by the way, an adder in the path" (Genesis xlix, 17). It seems that the seal-cutter from Dan worked from a model without quite understanding it; therefore he has not only given a thickening at the head, but at the tail, too. An additional feature of the Tello seal are the snakes hanging from the crown of the monster. They are not paralleled by anything in the Dan seal. The seal from Tello is dated to the 8th century. It measures 22 mm. in length, 15 mm. in width and is made of variegated agate.

The British Museum possesses a further seal of this type (pl. IIIc). Its number in the museum is 117908, it is 25 mm. long and 18 mm. broad. It was given to the Museum by Mr. C. Lambert in 1926. Its provenance is unknown. It should be dated to the 7th century. The main feature is a four-winged figure, marching to the left. It has the two parallel lines underneath the figure but the space thus created remained empty. The inscription בעל חן Ba'al Ḥn appears in front of the figure. The genius is holding a flower in each hand. His garment is of Assyrian type. The attendants from Khorsabad (time of Sargon) now in the British Museum[1] and the two-winged, bird-headed monsters from Nimrud (now in the Louvre)[2] show the same feature of a garment leaving one leg bare. The same feature appears in the Dan seal too, as pointed out. The Ba'al Ḥn seal has the head and the wing-cases of the scarabeus clearly marked, as distinct from the other seals discussed here.

The name Ba'al Ḥn is of interest. Noth[3] notes the name Yhw-Ḥn in the documents from Elephantine, where it is used for women only. The Biblical Ba'al Ḥanan is related: it occurs as the name of an Edomite king (Genesis xxxvi, 38 f., 1 Chron. i, 49 f.) and as an official in the administration of David (1 Chron. xxvii, 28). Names formed with Hanan are numerous in the Bible: Hanan, Hanani, Hananiah, the tower Hananel; Hannibal of Carthage had the elements of Ba'al Ḥanan in inversion. The name Hanan appears, too, on the Samaria Ostraka[4].

The two new seals from Israel, being surface finds, are nevertheless well defined by numerous Phoenician parallels. They demonstrate once more the deep penetration of Phoenician culture into Israel. This penetration and the historical conflicts arising from it in the 8th and 7th centuries are reflected not only in Biblical literature and in the sumptuous ivories from Samaria, but also in private seals such as these.

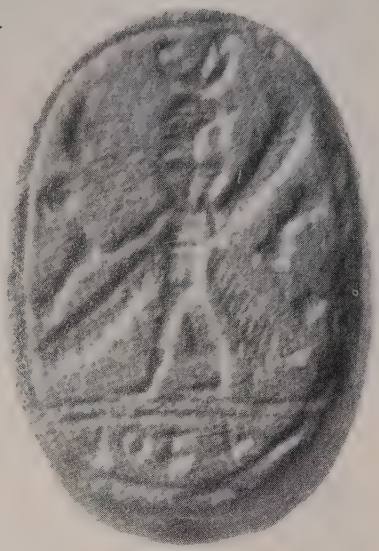
[1] C. J. Gadd, *Assyrian Sculpture in the British Museum*, London 1938, pl. XXVIII.

[2] E. Pottier, *Les Antiquités Assyriennes*, Paris 1917, pl. 2, 3.

[3] M. Noth, *Die Israelitischen Personen-Namen*, Stuggart 1928, p. 62.

[4] G. A. Reisner and C. S. Fisher, *op. cit.*, pp. 236–7 (nos. 43, 45–47).

A. The seal from Revadim.

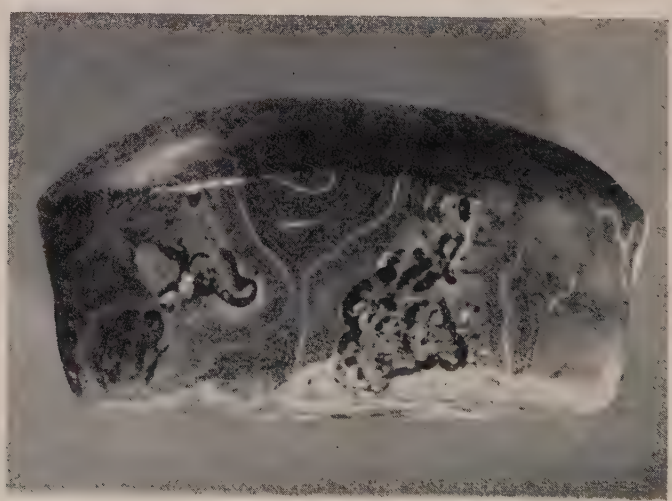


B. The seal from Dan.

C. The Ba'al-Ḥn seal (British Museum).

A. The seal.

B. A cast.



C. Side-view.

The Ba'al-Nathan seal from Tello.

GEOGRAPHICAL INFLUENCES ON THE HISTORICAL ROUTES IN THE SHARON PLAIN

By YEHUDA KARMON

There is no doubt that the economic and historical development of any country is influenced by its geographical position among other countries, and by the type and quality of roads, that connect it with its neighbours or provide routes for internal traffic. As the routing of these roads is mainly conditioned by topography and other geographical features, it tends to be constant through most of the historical periods, and to exert its influence on the location of focal settlements and on military strategy as well as on trade and industry.

This is specially true for the Middle East, where ancient trade routes are still used today, and where some towns fulfil their functions as main road-centres for hundreds and thousands of years. The location of roads at various historical periods has been the subject of research by many writers, specially the classical research of George Adam Smith[1], and has been summarized in some historical maps[2]. But although the general directions of roads could be fixed—mainly in reference to focal settlements—the exact location of the routes could be ascertained only in areas where milestones or remains of road-fortifications or bridges could be located. In other regions the routes could be placed only approximately.

Such a region is the Sharon Plain. Although it is known as an important stretch in the main thoroughfare of the country—the " Way of the Sea ", the Roman *Via Maris*—the exact location of that road could not be fixed, especially as some of the towns mentioned along the road have not yet been identified without doubt. It is the intention of this paper to point out some geographical features of the Sharon Plain, which may provide a basis for a more exact identification of the historical routes.

I. THE TOPOGRAPHY

The Sharon—between the rivers Yarkon and Taninim (Crocodiles)—forms part of the coastal plain of Israel with a length of approximately 50 km. and an average width of 18 km. Although defined as a " plain ", it is in

[1] G. A. Smith, *The Historical Geography of the Holy Land*, 1st edn., London, 1894.

[2] M. Avi-Yonah, " The Map of Roman Palestine," *Quarterly of the Department of Antiquities of Palestine*, Jerusalem 1936, pp. 139 ff. *Palestine of the Crusades.* 1 : 350,000. *Survey of Palestine.* Jaffa 1937.

no way a level region, but shows some very distinct topographical features. Its main topographical division runs along parallel lines, which divide it into three main belts, each of them running more or less parallel to the coast. Each belt in itself is subdivided into minor regions, which differ in small details from each other, but show the general characteristics of the belt. Each one of the belts has an average width of 6 km.

(*a*) *The western belt*

The western part of the Sharon consists of three parallel ridges of a limy sandstone, called kurkar, with intervening lowlands. Each ridge is no wider than 300–400m. The westernmost ridge forms the coastal cliff, which is characteristic for the Sharon and does not occur to the same extent in other parts of the coast. This cliff reaches an average height of 30–40m. and appears almost continuously along the coast. The only interruptions are the mouths of the rivers, which are accompanied by a gap in the cliff of 1–2 km. length. The gaps serve as accumulation centres of sand and form an area of sand dunes which encroached on the land for 3–5 km.

The second ridge, at a distance of approximately 1 km. from the shore, is higher than the coastal cliff, and reaches an average height of 45–55m. in the south, and of 25–35m. in the north of the Sharon. It is more continuous than the coastal cliff, and the river gaps are not wider than 300–400m.

The third ridge, about 4 km. distant from the sea, shows a covering of red sand above the kurkar—and will therefore be called the " Red Ridge "—and is the highest of the ridges. It reaches heights of 60–80m. in the south and 40–60m. in the north. In it the river gaps are narrowest and are confined to the river-bed proper.

The lowlands between the ridges are valleys which are covered partly by dune sand and lack proper drainage. Therefore they tend to form small temporary lakes (mainly the western valley) or large swamps (mainly the eastern valley (see map No. 1).

(*b*) *The central belt*

The central belt is formed by hills of red sand without any marked direction or order. The topography resembles an area of sand dunes. The hills reach heights up to 90m., their average height being 50–60m. In the southern Sharon this area is continuous for about 25 km., in the north it is interrupted by three broad river valleys: Alexander, Hadera, and Ada. These valleys, of an average width of 3–5 km., lack proper drainage, because the flow of the rivers is impeded by the kurkar hills to the west, and form extensive swamps.

1. Mountainous Area
2. Oak Forest on Red Sands
3. Swamps
4. Sand Dunes
5. Tell (with no established chronology)
6. Tell (with Iron-Age pottery)
7. Earliest pottery of Early Bronze
8. Earliest pottery of Middle or Late Bronze
9. Assumed All-season Road
10. Assumed Dry-season Road
11. Ridge of Kurkar Sandstone

The unshaded area represents alluvial soils, fit for agriculture.

Map. No. 1. The Sharon Plain: Assumed Settlements and Roads in Early Historical Times.

(*c*) *The eastern belt*

At the foot of the Samarian mountains lies the only continuous level region of the Sharon. Its width varies between 1 and 6 km.; it is drained by the Yarkon river to the south, by the Alexander river in the centre, and by the rivers Hadera and Ada in the north. As this eastern trough has a certain slope to the south and north, it is well drained and free of swamps. It served therefore in all historical periods as the main centre of settlement in the Sharon.

(*d*) *The mountain slope*

As all inland communication of the Sharon towards the east has to ascend the Samarian mountains, the configuration of their slopes plays an important part in the selection of the best access to the interior. Two types of slopes can be distinguished. In the southern part of the Sharon the adjoining mountains are built of a hard limestone, which forms a harsh topography with steep slopes and narrow river-valleys, that are hardly suitable to serve as routes. The northern part of the mountains is formed of alternating hard limestone and soft chalk. In the chalky regions broad valleys penetrate deeply into the mountains, which themselves show softer contours and are more easily crossed than the mountains further south. The border between the two types of slope occurs with the valley of the River of Shechem—a tributary of the Alexander river—which in all times served as the easiest route towards the town of Shechem (Nablus).

II. The Natural Routes

As long as there did not exist any paved roads, transport was free to choose its routes over a wide area, but was restricted of course by natural obstacles. In mountainous regions these were formed mainly by steep slopes and rocky ground, in the coastal plain they were of a different form: sand dunes and perennial rivers were among the main obstacles. Although they could be crossed with a certain effort, transport preferred to bypass them, wherever this was possible. But the most formidable obstacles were swamps, whose occurrence along the routes was the determining factor in the development of permanent roads. In the Sharon Plain an additional obstacle occurred in the form of the extensive oak-forest, which covered more than half of its area, and became almost synonymous with "Sharon"[1]. Palaeobotanic research[2] has shown that the extent of this oak forest coincided

[1] The Septuagint translates "Sharon" by δρυμὸς, i.e. "oak forest".

[2] A. Eig, "A Historical and Phytosociological Essay on Palestinian Forests of Quercus Aegylops, ssp. Ithaburensis, in Past and Present", *Beihefte zum Botanischen Centralblatt*, Bd. 51, pp. 233 ff., Abt. II, Prag-Dresden, 1933.

with the areas of red sand, as these soils were unsuitable for agriculture, and therefore the forest was not cleared for settlement. Its existence is witnessed not only by references in the Bible and in Roman times, but also in the Crusaders' period, when it was called " the Forest of Arsuf "[1]. It covered an extensive part of the Sharon at the time of Napoleon[2]. Its destruction started in the 19th century, when Ibrahim Pasha destroyed its southern regions in order to provide the Egyptian ruler Muhammed Ali with fuel and material for ship-building[3], and its last remains were destroyed during the first World War to provide fuel for the Turkish railways.

The most suitable areas for routes in the Sharon were therefore the areas of alluvial soils, whose forest-cover was cleared in the earliest beginnings of agriculture, and which provided sufficiently firm ground for chariots. But in winter these heavy soils tend to become waterlogged. For all these reasons the Sharon Plain is by no means an area of unrestricted movement-facilities, like the large grassland plains in other parts of the world. Transport had to choose carefully the few lanes, where the least obstacles were encountered. The routes, thus worked out in the earliest times, served—with little changes—all through history, and influenced, in their turn, the location of main towns and strategic centres.

(*a*) *Longitudinal routes*

The physical setting of the Sharon clearly favours north-south movement, as all its natural features run in that direction. But actually, this movement too was restricted to two routes, one in the western and one in the eastern sector. The whole central sector was unsuitable for transport—and is so in fact even today—because of its uneven topography and cover of red sand. In ancient times it was an alternation of swamps with dense oak-forest, unsuitable for agriculture, and unsettled, except for the Roman period (see map No. 2) and most recent time. It prevented connection between the eastern and western belts of the Sharon and even today no road crosses it from north to south.

In the *western* belt the parallel ridges of kurkar-sandstone leave between them two longitudinal valleys, a narrow one to the west, which today is partly obliterated by encroaching sand-dunes, and a wider one, further east. As the eastern valley lies at a lower elevation than the western one, large swamps are formed by the rivers that cross it, which made it unsuitable for through-transport. It was never used as a route, until 1951, when the

[1] Ambroise, *L'Estoir de la guerre sainte*. Transl. by E. L. Stone, in *Three Old French Chronicles of the Crusades*, Seattle, 1939, Chap. 37, p. 86.

[2] See Jacotin's map in *Description de l'Egypt: Recueil des observations et des recherches qui ont été faites en Égypt pendant l'expédition de l'armée française*, 2ed., 25 vols., Paris 1820–1830. Vol. 8: Atlas, feuille 44–45.

[3] M. Assaf, *The Arabs under the Crusaders, Mameluks and Turks* (Hebrew), Jerusalem 1941, p. 373, note 191.

railway between Tel-Aviv and Haifa was built along it. The narrow western trough was therefore the only route possible in the western Sharon, but it too was not without obstacles. It had to cross all rivers, which, at that short distance from the sea, are perennial and accompanied by dense vegetation and swampy ground on both sides. As long as no bridges were known, they could be forded only near their mouth, where their flow is reduced by sandbars to a mere trickle. This means, that a route using this trough had to detour for a kilometre or two at each one of the four rivers, and thus was lengthened to a considerable degree, besides being forced to cross the dune area in the vicinity of each river mouth

In order to avoid these detours an alternative route was possible: immediately along the sea-shore. Here the going is comparatively easy, as all along the coast of the Sharon there exists a sandy shore of a width of 20–40m. The moist sand at the shore is easier to cross than the larger accumulations of sand dunes further inland. As the rivers too may be crossed at their mouth without any detour, the route along the shore is actually easier than the one along the western trough, but it too has its difficulties. The sandy shore disappears for two stretches of about 2 km. in length, where small promontories bring the cliff in direct contact with the waves and interrupt the possibility of movement. The one occurs between the rivers Poleg and Alexander, the other one between the rivers Alexander and Hadera. In addition, the whole route is usable only in summer, as in winter the storm-floods bring the waves up to the cliff.

Actually it came about, that the western route was a combination of the two alternatives. For some stretches it preferred the seashore, for others it used the western trough. There are numerous examples in literature of this combined route. Richard Lion-heart used it on his way from Acco to Jaffa, and Ambroise[1] describes it as follows: " From the Carmel promontory to the south the army went along the shore, ascending the coastal valley after crossing the ' Dead River ' (i.e. Hadera), because the shore was stony and broken ". From there it used the coastal valley, until it reached Arsuf, where it descended again to the coast, in order to cross the Yarkon river on its way to Jaffa.

The army of Napoleon, whose routes were marked on Jacotin's map[2], on its retreat from Acco went along a similar route, and the map marks the relevant stretches of the shore as " Côtes dangereuses ".

Buckingham[3] (in 1822) went along the shore from Caesarea to Minet Saboura (today Mikhmoreth), and then along the coastal trough to Sidna Ali (Arsuf), whence he went down again to the shore.

[1] Ambroise, *op. cit.*

[2] Jacotin, *op. cit.*

[3] J. S. Buckingham, *Travels in Palestine*, London 1822, p. 215.

As late as 1912 was this route used by Dalman[1]. The combined route will be referred to as the " coastal route ". As noted above, it is doubtful whether it was suitable in winter, because at that season the shore disappears, and the rivers are much deeper. For that reason, the coastal route remained a secondary one.

The *eastern* route was no doubt the most important. On the well drained level soils of the eastern valley it met with no obstacles, as the sand dunes and kurkar hills, as well as the swamps and forested red sands, are confined to the western and central sectors. The rivers in this valley present no difficulty either, as their beds are dry and very little incised, but capable of carrying the occasional flood-waters in winter without causing large-scale flooding. The only difficulty arises from the waterlogging of the soil during the rainy season, but this may be overcome by keeping close to the foot of the mountains, where outcrops of limestone and chalk provide dry ground. As the eastern valley was also the main centre of settlement, it is clear that the international highroad preferred it for its route.

(*b*) *Transverse routes*

The crossing of the Sharon from east to west is more difficult than its transverse from north to south, the main obstacle being the hilly area of the central hills, which all through history was covered with dense oak forest. The only gaps in the hills are the river valleys, but as these were mostly covered with extensive swamps, there remains no natural route to cross the width of the Sharon. A connection between the eastern and the western belt could be found only by using the contact zone between the swamps and the forest, where—at least in summer—a certain stretch of dry land without forest cover could be expected. But there is no testimony that any one of the international routes used one of these lanes.

In the southern Sharon even a route of the above-mentioned kind did not exist, as the red hills stretch without interruption from the Yarkon to the river Alexander. Only in the northern Sharon, along the edges of the valleys of the rivers Alexander and Hadera, are these stretches possible.

More important are the transverse routes, that branch off the eastern highroad towards the mountains. The delineation of these routes depends of course upon the possibilities of crossing the adjoining mountains on the easiest route. As stated above, these occur only in the northern part of the Samarian mountains. Thus there exists a parallelity of conditions in the Sharon and in the adjoining mountains. Transverse routes are possible in both regions in the northern half of the Sharon, but are improbable in the

[1] G. Dalman, " Palaestina als Heeresstrasse im Altertum und in der Gegenwart ", *Palaestina-Jahrbuch* 8, 1912, pp. 15 ff.

southern sector. Therefore, if there was a need for connection between the mountains of Samaria and the coast, it could be found only in the northern Sharon.

(*c*) *Type of routes*

The term " route ", applied here, does not denote a defined line, but an area of varying width, inside which unrestricted movement was possible. Along the seashore and the edges of the swamps, this area may have been a strip not wider than 10–30m., which probably disappeared in the rainy season; in the eastern valley the highroad actually could use the whole width of 2–5 km. Of course for commercial transport a lane was chosen that did not infringe on the cultivated fields, but an army, specially a marauding enemy, may have used it from edge to edge.

The influence of the seasons also defined the exact route more for commercial than for military traffic. Military expeditions usually were confined to the dry season and therefore unlimited in the use of the existing routes, while commercial traffic went on all the year round, and had to find its way also in the rainy season. It may be assumed that in the dry season caravans preferred the heavier soils, which are firmer than sand, but in the rainy season preferred the sand dunes to the west or the limestone outcrops to the east. The latter may have forced the route in winter to climb the lower spurs of the Samarian Mountains.

III. Historical Changes in the Use of the Routes

The physical possibility of the use of a stretch of land as a route, of course, does not yet imply its actual use as such, unless it serves an economic or military purpose, which may be connected less with the region it crosses, than with the region it aims for.

(*a*) *The borderlands*

It seems necessary therefore to discuss shortly the regions bordering on the Sharon.

To the *west* of the Sharon lies the Mediterranean Sea, one of the main traffic lanes of the ancient world. As has been mentioned before, the shoreline of the Sharon is formed everywhere by a steep cliff, which contains no bays that could provide shelter, even for smaller vessels. Of all the known harbours of Palestine, none was situated on the coast of the Sharon, except Caesarea. This artificial harbour, built by Herod in the year 20 B.C., served as the main harbour of the country through the Roman-Byzantine period (until the 7th century A.D.) and received a short revival in the Crusader-period (12th century). Some smaller havens for small boats may have existed, as along the seashore there are remains of ancient towns, which

have not been explored until now (Tel Michal near Apollonia, a tell near the mouth of the Poleg river, and Tel Gador near Hadera), or of later towns, like Apollonia and Mikhmoreth, whose purpose has not been defined either. In general, the shore of the Sharon was unattractive and artificial construction of harbours unjustified, as the northern and southern parts of the country were served by good natural harbours, viz. Tyre, Acco, Dor, Jaffa, Ascalon and Gaza, and the central area of the country (Samaria) did not carry sufficient weight of its own or could be served by the existing harbours. Only special political reasons could advocate the use of harbours on the Sharon-coast.

To the *east* the Sharon borders on the mountains of Samaria, which all through history formed the most fertile region of the country. The agricultural products of that region, specially wine and olive-oil, naturally did not look for markets to the north, where similar products could be found, but towards Egypt or overseas, and had therefore to use the routes of the Sharon and probably also its small port installations[1].

But the most important section of this eastern region is its northern part, which, owing to its easy topography carried the road to the Valley of Esdraelon and thence—via the Jordan Valley or Lower Galilee—towards Damascus[2], the main emporium of ancient and mediaeval times. This route opened for the Sharon a hinterland of traffic, which included much more than the immediate neighbourhood of Samaria—practically all of the " Fertile Crescent ".

To the *north* of the Sharon the coastal plain is continued by the narrow strip of the Carmel-Plain, which at its northern end is impeded by Cape Carmel, which juts out into the sea. As, in addition, this plain is partly swampy, it is not suitable for a main thoroughfare, and probably served only restricted local movement. The main road to Acco and the Phoenician towns used the same northern hills of Samaria as the road to the Valley of Esdraelon, and came out into the same valley by the pass of Yokneam.

Only a few historical instances are known, when the direct northern route of the Carmel-Plain was used. This was the route by which Richard Lionheart proceeded from Acco, because he had to remain in touch with his fleet, and the route of Napoleon's retreat from Acco. On his advance to Acco, Napoleon, too, used the hill road to Yokneam.

Towards the *south* the Sharon opens out into the coastal plain of Judaea and Philistia, which in its turn leads towards Egypt. As the Yarkon river and its swamps form an obstacle to southbound movement, traffic used two lanes:

[1] The little cove of Mikhmoreth (=Minet-Abu-Zabura) was known in the 19th century as the export-port for agricultural products of Nablus, especially melons. See also J. S. Buckingham, *op. cit.*, p. 141.

[2] For the historical importance of these hill roads see G. A. Smith, *op. cit.*, pp. 150 ff.

the western one crossed the Yarkon near its mouth and led to Jaffa, the eastern one used the gap between the Yarkon springs and the mountains (which was guarded by the ancient fortress of Aphek[1]=Antipatris) and led to Lydda. Both lanes met again in Yavneh. It may be stressed that this route formed the only possibility for road connection between Egypt and other lands of the Middle East, except Arabia, because any direct movement towards the east met with the obstacles of the Dead Sea or the impassable basalt plateau of Transjordan. Thus, for Egypt, more than for any other country of the Middle East, the Sharon formed part of the main route to other countries, and being much narrower than the southern coastal plain, possessed an even greater strategic significance.

To sum up: not only physical conditions, but also general regional considerations favoured much more the north-south direction of traffic in the Sharon than an east-west movement. That is to say, the function of the Sharon was not to serve as a seaboard for central Palestine, but as a stretch on the main highroad of the Middle East. The main movement went from the N.E. corner towards the south, with other directions serving as feeders to the main artery.

(*b*) *Biblical times*

An attempt to fix the exact location of the routes in different historical periods will have to be based on the continuation of these routes, as stated in the previous chapter. The most important exit to the north-east was connected with Tel-Arruboth (Tel Assawir)[2], where the " Way of the Sea " entered the hills of Manasseh and forked into its two branches to Megiddo and to Yokneam[3]. The major exit to the east used the valley of the River of Shechem (near the modern town of Tul-karm), that led towards Shechem; a secondary route could use a valley (near the modern village of Baqa-el-Gharbiye), that led to the Valley of Dothan and to Jenin. The southern exit near the sources of the Yarkon river has already been mentioned above. A line, connecting these main exits, runs along the eastern edge of the Sharon, in places climbing onto the lower slopes of the Samarian hills. Along this line, specially in its northern sector, a large number of tells is found[4]. (See map No. 1.)

But there exists also a line of tells along the western edge of the eastern trough, which once formed the boundary of the forest. A road along this

[1] W. F. Albright, " The site of Aphek in Sharon, *Journal of the Palestine Oriental Society*, Jerusalem, 3, 1923, pp. 50–53.

[2] The suggested identification of Tel-Assawir with ancient Arruboth, that led to the modern name of the tell, has been doubted again, after an archaeological survey, carried out by M. Dotan, did not discover relevant layers.

[3] Y. Aharoni, " Zephath of Thutmose ", *Israel Exploration Journal*, 9, 1959, p. 110–112.

[4] A. Alt, " Pharao Thutmosis III in Palestine ", *Palaestina-Jahrbuch*, Jerusalem, 10, 1914, pp. 53–99.

line would be possible only in summer; in winter it would not find sufficient dry ground[1] and would get lost in the swamps of the Alexander and Hadera rivers. Therefore it may be assumed that the western edge of the eastern trough served only as a seasonal road in summer[2], but that the all-weather road used the eastern edge. This assumption is strengthened by the fact that the eastern tells are larger and strategically better situated than the western ones, and that towns, mentioned in ancient reports, have been identified until now only with tells along the eastern edge[3], while attempts to identify the western towns also could not be proved sufficiently by archaeological evidence[4].

As for the coastal road, we are left more to guessing. With the exception of the ancient town of Hefer, which has been placed at Tel Ifshar[5], none of the few western tells could be identified so far, and no literary source could be found for the use of a western road along the shore of the Sharon, whose location has been described above (p. 48). It may be assumed that the use of this route was confined to local purposes only.

A possible transverse connection between the two routes may be assumed along the southern edge of the valley of the Alexander river, between the tells of Hefer and Haniel (Tell Ishkaf). This connection could have been used as a link between an unidentified harbour town at the mouth of the Alexander river and the Valley of Shechem. (See map No. 1.)

(*c*) *The Roman-Byzantine period*

During the Roman-Byzantine period the Sharon achieved the additional function of a seabord by the foundation of the town and harbour of Caesarea. The site of the town, whose natural conditions were unsuitable for a port, was chosen by King Herod for political reasons (outside the scope of this paper), and the building of the splendid artificial harbour in 12 years' time was an engineering feat of the first rank. The foundation of this town, which became later the capital of the Roman province of Palaestina, influenced the geography of the Sharon in a high degree, turning it into the most densely settled part of the coastal plain, and giving the area a regional impact on transportation it never possessed before. With the existence of a protected

[1] The impassability of the valley in winter is noted by F. M. Abel, *La Géographie de la Palestine, Vol.* II, Paris 1938, p. 219.

[2] A. Alt, "Die Reise", *Palaestina Jahrbuch*, Jerusalem 1925, pp. 29–57, mentions the existence of a winter and a summer route at that time (p. 47).

[3] F. M. Abel, *op. cit.*, p. 23.

[4] B. Maisler (Mazar), "The military expeditions of Amenhotep II to the Land of Canaan" (Hebrew), *Jerusalem*, 4, 1952, pp. 13–20.

[5] B. Maisler (Mazar), "Die westliche Linie des Meerweges", *Zeitschrift des deutschen Palaestinavereins*, 58, 1935, pp. 78–84.

harbour, which—according to Flavius Josephus[1]—was second only to Piraeus, the Sharon became the seashore of Central Palestine, and therefore had to develop new transport routes for the connection with the inner parts of the country. The east-west direction became as important as the north-south routes.

As the Romans were masters in the construction of roads and bridges, the obstacles that had impeded inland traffic in earlier times, like rivers and swamps, could now be overcome with the aid of bridges and causeways.

Unfortunately of the many milestones of Roman roads that have been found in Palestine[2], none has been discovered until now *in situ* in the Sharon area, neither have road-foundations been undoubtedly identified as such. Thus there is no clear-cut evidence of the exact routing of the Roman roads, except some remains of bridges. But here, too, geographical conjectures may be of help.

The historical evidence for the dense road-net in the Sharon is given by the Peutinger-map[3], which shows no less than five roads converging on Caesarea. No other crossroad of the same importance appears on the part of the map showing Palestine and Syria. The very generalized layout of the map does not provide clues for the exact location of the roads except the indication of distances in miles between different stations along the roads. In areas where the exact route could be verified by foundations, bridges, and milestones, the distance-figures of the map have been proven as almost correct, and similar distances have been indicated by early travellers in their " itineraries ", and therefore we may use them in the Sharon, too, as the main correcture for our conclusions.

The Peutinger-map shows the following roads in the Sharon:

1. Caesarea–Thora (Dor)–Ptolemais (=Acco).
2. Caesarea–Kapor'otani (=Kefar Otna=Megiddo)–Scythopolis (=Bet-Shean).
3. Caesarea–Neapolis (=Shechem).
4. Caesarea–Lydda–Yavneh (with a branch to Gofna and Jerusalem).
5. Caesarea–Apollonia–Jaffa.

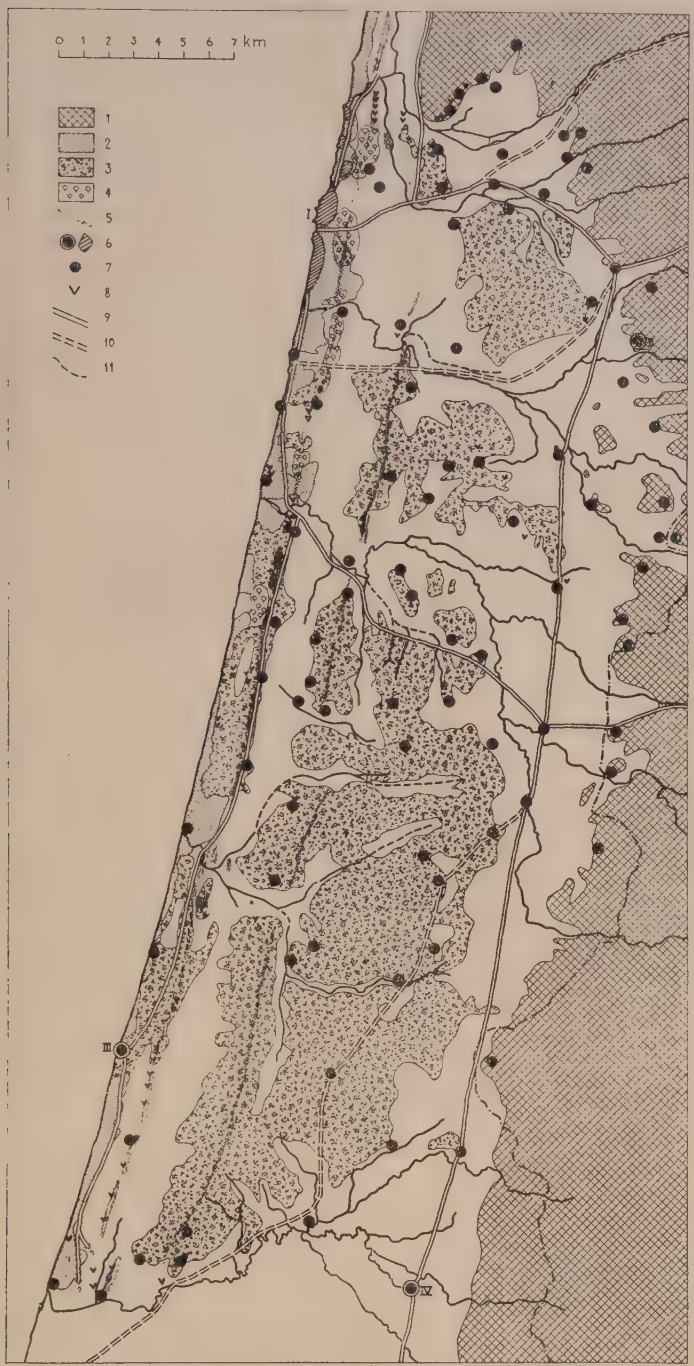
The map does not show the *Via Maris* as a continuous stretch, but its existence is known to us from other sources[4]; it may be assumed that it consists of stretches of the roads Lydda–Caesarea and Caesarea–Megiddo.

[1] Flavius Josephus, *Antiquities of the Jews*, xv, 9, 6.

[2] P. Thomsen, " Die roemischen Meilensteine der Provinzen Syria, Arabia und Palaestina ", *ZDPV* 40, 1917, pp. 1–103.

[3] *Tabula Peutingeriana*, ed. Miller, *Itineraria Romana*, Stuttgart 1916.

[4] M. Avi-Yonah, *op. cit.*



1. Mountainous Area
2. Sand Dunes
3. Oak Forest on Red Sands
4. Carob Plantations
5. Ridge of Kurkar Sandstone
6. Urban Settlement:
   - I: Caesarea
   - II: Narbata
   - III: Apollonia
   - IV: Antipatris
7. Rural Settlement
8. Discovered Tombs
9. Assumed Main Paved Road
10. Assumed Secondary Road
11. Assumed Ancient River Course

The unshaded area represents agricultural lands.

Map. No. 2. The Sharon Plain: Assumed Settlements and Roads in Roman-Byzantine Times.

The main change in the Roman road-net is the appearance of a continuous coastal road from Jaffa via Caesarea to Acco. As this road could cross the rivers on bridges it became unnecessary to detour to the coast, in order to ford the rivers near their mouth, and the road could use the westernmost valley—near the eastern slope of the coastal cliff—for all its length. This assumption is aided by the road distance, which is given as 22 miles, i.e. 34 km., between Caesarea and Apollonia, which fits exactly the distance between the two towns on the assumed line. (See map No. 2.)

The *Via Maris* used the historical route of the " Way of the Sea ", but probably at another location. The repeated ascent to the lower spurs of the Samarian hills, which was made necessary by the mud in the valley in winter, became difficult for waggons, as used by the Romans. On the other hand the paving of roads enabled the Romans, who preferred straight routes, to build their road in the centre of the alluvial eastern valley, where it met with no topographic difficulties. The new location of the route can be assumed by the appearance of new settlements in the centre of the valley, which all became known as centres of communications[1]: Kh. Majdal; Kh. Jalame; Kakun; Bir Burein; Kalansawe. The road along the centre of the valley was in use up to the times of Napoleon, probably as long as any remains of the ancient paving still facilitated movement even in the rainy season.

In addition to the two longitudinal roads, there appeared also cross connections. The northernmost is marked as part of the road Caesarea–Megiddo. Its location should be sought for along the valley of the river Ada, which, as the immediate hinterland of Caesarea, was drained and settled for the first time in the Roman period, and which shows the densest pattern of Roman ruins (see map No. 2). It joined the *Via Maris* probably at Tel-Arruboth.

The second transverse road is marked on Peutinger's map as the road from Caesarea to Neapolis (with continuation to Jerusalem). If the remains of a Roman bridge near Tel Hefer[2] over the Alexander river can be accounted for as part of this road, we are able to reconstruct its route along the southern edge of the valley of the Alexander river to a crossing with the *Via Maris* near Bir Burein, in the vicinity of the entrance to the Valley of the river Shechem, which forms the only possible continuation towards the

[1] A. Alt, " Stationen der roemischen Hauptstrasse von Aegypten nach Syrien ", *ZDPV*, 1954, pp. 154–166.

[2] B. Maisler (Mazar), *ZDPV*, 1935 (cf. p. 53, n. 5). The ruins of this bridge have been connected with the coastal road Caesarea-Apollonia, but a road, crossing the Alexander river at this point, and not further west—as assumed by the author—would be 8 km. longer than the distance given on the map.

town of Shechem[1]. Along this assumed route remains of pavement have been found, which could be interpreted as part of the road, as well as stones, which are interpreted by some as milestones, however, without inscriptions[2]. Bir Burein itself could be identified with the Roman post-station of *mutatio Bethar*, as has been suggested already by Guerin[3], and hinted at by Alt[4]. The distance between *mutatio Bethar* and Caesarea, which is quoted in the itinerary of Theophanes of Hermopolis[5] as 16 miles, i.e. 25 km., suits the assumed location of the road, while any other possible road combination[6] would result in longer distances and unnecessary topographic difficulties.

There is the possibility of a road having existed between Jaffa and Shechem, joining the *Via Maris* at Kalansawe. It is not marked on the Peutinger map, but indicated by a string of settlements along its route and by later use. This road crossed the Yarkon river with the aid of a mill dam (El-Hadr), whose foundations date back to Roman times,[7] and then crossed the forested area of the southern Sharon along a stretch of slightly heavier soil, which was then probably cleared of the forest and put into agricultural use. Along this stretch appeared settlements, whose ruins are found today in the following places: Kh. Sabieh (Kefar Saba); Kh. Deir Isfin (=Theraspis)[8], Kalodia. It also passed near the modern villages of Meska and Thira. (See map No. 2.)

The density of the road-net of the Sharon in Roman-Byzantine times was so great that there remained no settlement at a larger distance than 5 km. from any paved road.

(*d*) *Later periods*

As elsewhere in the Roman Empire, the Roman roads left their impact on the Sharon, too, for centuries after. The routes, chosen and prepared by the Roman engineers, were in use until the construction of the modern roads in the twentieth century. But the use itself declined in accord with the general changes in the economic and political status of the region.

With the transfer of the capital of Palestine in early Arab times (7th

[1] F. M. Abel, *op. cit.*, p. 225, referring to the " Survey of Western Palestine ", puts the road along the valley of the Hadera River through Kh. el Beidus, Zeita, Deir-el Ghusun, Anabta. This suggested route is much longer than the given mileage and topographically more difficult than the one assumed by the author.

[2] Information provided by Dr. F. Berger, inspector of antiquities, central region.

[3] V. Guérin, *Description de la Palestine*, Tome II; *Samaria*, Paris 1874, vol. 2, p. 224.

[4] A. Alt, *ZDPV*, 1954 (cf. p. 56, n. 1), p. 164.

[5] Quoted by A. Alt, *ZDPV*, 1954 (cf. n. 4).

[6] M. Avi-Yonah, *op. cit.*; also A. Alt, *ZDPV*, 1925 (cf. p. 53, n. 2), in a prior publication identify Bethar for synonymous reasons with the modern village of Thira.

[7] S. Avizur, *The Yarkon* (Hebrew), Tel-Aviv 1957, p. 155.

[8] M. Avi-Yonah, *op. cit.*

century) from Caesarea to Ramleh, and with the gradual decline of maritime trade in favour of overland-caravans, the Sharon lost its position as the seabord of Samaria and again became only a link on the land route from Egypt to Syria. This change of conditions was accompanied by the relative decline of the harbour-towns, like Jaffa, Apollonia[1], and Caesarea[2], and the ascendance of Ramleh, which attracted most of the trade to its gates.

The deviation of the routes from the coast to the interior gave renewed supremacy to the eastern road—the *Via Maris*—over the coastal road. In addition, the Arab conquest resulted in a general decline of agriculture, specially of the vineyards, which formed the main agricultural branch of the Sharon[3], and which were abandoned because of Islam's ban on wine. Drainage works, too, were neglected, while the abandonment of the plantations led to a further encroachment of the sand dunes and a return of the swamps. All this resulted in the return of conditions of biblical times, when only the eastern valley of the Sharon was densely settled and formed the only route.

A comparison of settlements at the time of the Crusaders with the Roman-Byzantine period shows that, of 58 Roman settlements in the western and central Sharon, only 17 existed also in Crusader times[4], while in the eastern Sharon all 35 Roman settlements still existed (see map No. 3). The roads of the western Sharon, too, deteriorated, the bridges probably collapsed, and it became necessary again to deviate to the mouths of the rivers in order to ford them. The description, given by Ambroise on the campaign of Richard Lion-heart[5], makes no mention of any paved road or bridges, but describes the route from Acco to Arsuf (Apollonia) as being impeded by sand and swamps, hemmed in to the east by the dense forest of Arsuf and forced sometimes to pass along a rocky and dangerous seashore.

In contrast to the decline of the western Sharon, the route of the *Via Maris* continued to serve as the main traffic artery, and along it the Crusaders built fortified towns, like Mirabel (Majdal Jaba); Torons aux Fontaines Lourdes (Rosh Ha'ayin); Kalansawe, and Kakun. Kakun became the crossroad of the Sharon, probably because it was from here that a road to Caesarea could be found, that bypassed the renewed swamps of the Alexander river. Another reason for the shifting of the crossroads from Bir Burein to Kakun may be that the road leading eastwards from Bir Burein towards Nablus was in Muslim hands.

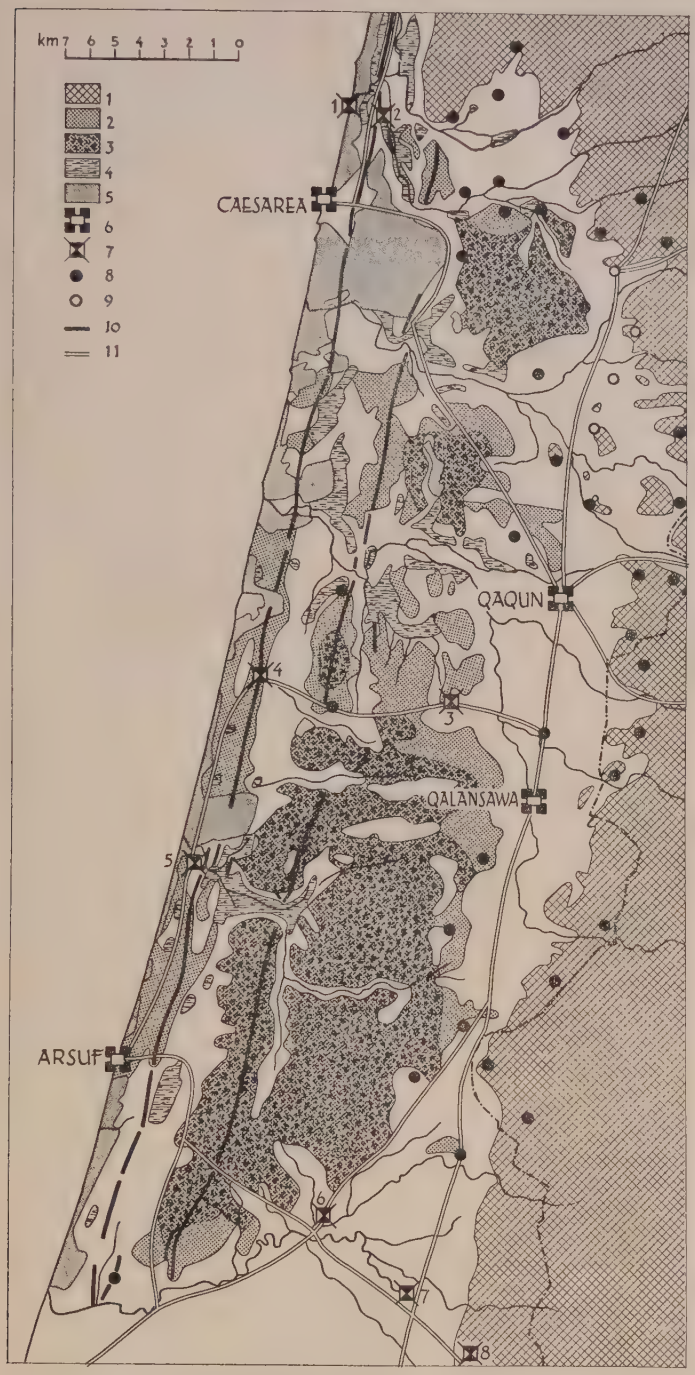
[1] Mukaddasi, quoted by Guy le Strange in *Palestine under the Moslems*, London 1890, p. 399.

[2] A. Reifenberg, "Caesarea, a study in the Decline of a Town", *Israel Exploration Journal*, Jerusalem, 1, 1950, pp. 22–42.

[3] The remains of numerous wine-presses have been found all over the Sharon. In the Mishnah (Nidda, 82; 7) the "wine of the Sharon" is specially mentioned.

[4] G. Beyer, "Das Gebiet der Kreuzfahrerherrschaft Caesarea in Palaestina", *ZDPV* 53, 1936, pp. 1–81; "Die Kreuzfahrergebiete Sued-west-Palaestinas", *ZDPV* 68, 1958, pp. 148–192.

[5] Ambroise, *op. cit.*



1. Mountainous Area
2. Red Sands without Forest Cover (Grazing Land)
3. Oak Forest on Red Sands
4. Swamps
5. Sand Dunes
6. Town
7. Fortress
8. Agricultural Settlement
9. Agricultural settlement, abandoned in later Crusaders' Period
10. Ridge of Kurkar Sandstone
11. Assumed Road

The unshaded area represents alluvial soil, fit for agriculture.

Latin or French Names of the Fortresses:

1. Turris Salinarum
2. Castrum Feniculi
3. Turris Rubea
4. Castellum Rogeri Langobardi
5. ? ?
6. Turro Filiae de Comar
7. Toron aux Fontaines Sourdes
8. Mirabel

Map. No. 3. The Sharon Plain: Assumed Settlements and Roads in Crusader Times.

Kakun retained its importance even after the times of the Crusaders, as the Mameluks, too, used its fortifications, and turned them into a khan and the main stage on the postal road from Syria to Egypt[1]. It remained the most important settlement and administrative centre of the Sharon until 1914, when it was superseded by Tul-karm, because the latter was situated at the newly constructed railway.

The shifting of the main traffic back to the eastern Sharon gained momentum after the Crusades, when the coastal towns of Caesarea and Arsuf were completely destroyed, and the Sharon was deprived of any connection with the sea. The western route fell completely out of use because the area became infected not only with swamps and malaria, but also with beduin and robbers, which made any journey through the western Sharon dangerous. Tales of travellers up to the 19th century repeat the stories of Beduin attacks[2] and travellers preferred to go from Jaffa to Acco by boat[3]. The insecurity affected even the eastern route, and in the 18th century the usual route went through the mountains via Jenin–Nablus–Jerusalem–Ramleh[4]. The only connection of the eastern route with a seaport was the road Kalansawe–Jaffa, along the above-mentioned Roman road (p. 57)[5].

In the 19th century, when more normal conditions returned to Palestine, the eastern route of the Sharon came again into use. The army of Napoleon, on its way to Acco, and, 30 years later, the army of Ibrahim Pasha, as well as the British Army of Allenby in the First World War, proceeded along this route, and when the British authorities started in 1918 to build the railway from Egypt to Haifa, they used again the eastern route of the Sharon for that purpose. It was not until 1937 that the western parts of the Sharon were reopened for traffic by the construction of the highroad from Tel-Aviv to Haifa.

Thus the main geographical conditions of the Sharon affected transport all through history in a similar way. The eastern route served as the main artery through most periods of history, but was replaced by the western routes in the rare periods of political stability and a well developed agriculture.

[1] F. M. Abel, " La liste des donations de Beibars à Palestine ", *Journal of the Palestine Oriental Society*, 19, 1939, pp. 38 ff.

[2] The physician R. R. Madden, *Travels in Turkey, Egypt, Nubia and Palestine* (1814–27), London 1829, reports five Beduin attacks in three days between Acco and Jaffa.

[3] W. M. Thomson, *The Land and the Book*, London 1859, pp. 491 f.

[4] *Des Herrn von Arvieux merkwuerdige Nachrichten*, ins deutsche uebersetzt, Kopenhagen-Leipzig, 1753, p. 20.

[5] It may be noted that as late as 1932 the only connection for motor-traffic from Jaffa to Haifa went through the mountains on a route: Jaffa—Qalqilieh—Tul-karm—Jenin —Nazareth.

THE WHITE SLIP SEQUENCE AT BAMBOULA, KOURION

By J. L. Benson

Introduction

In view of the present uncertainty regarding the origin of White Slip ware of the Bronze Age[1], it seems timely to call attention to some valuable evidence on the development of this fabric. This evidence, garnered some years ago by the late J. F. Daniel, does not, it is true, directly illuminate the problem as to whether the ware originated in Cyprus or in Syria; it does, however, reveal in more detail than has hitherto been available, from a carefully stratified sequence, the successive steps in the rise and decline of this class of pottery. This, in turn, proves at least that the story of White Slip ware is consistent and self-contained in Cyprus from the Late Cypriote Ia: 1 period, a point to which I shall return later. Moreover, the abundance of White Slip I ware at Bamboula, as evidenced in the section of the settlement and the tomb to be discussed here, provides a corrective supplement to the observation made on the basis of earlier excavations that its appearance is "scarce but regular" in Cyprus[2]. This may tend to strengthen Sjöqvist's view that the ware is indigenous.

The Stratification

The place in which the material presented here was found is Area C of the Late Bronze Age settlement at Bamboula, Kourion. Area C does not represent one of the principal inhabited areas of the settlement. In fact, although some floors were encountered in the central portion of the area (whence derives the stratification in question here), it proved impossible to determine to what sort of building or buildings they may have belonged and, indeed, what connection the entire area had with the remainder of the settlement. In the north-western and south-eastern parts of Area C, adjacent to the floors mentioned above, much evidence was found of what was obviously an artificial fill brought in from elsewhere. The area involved

[1] E. Sjöqvist, *Problems of the Late Cypriote Bronze Age* (Stockholm, 1940), 82 ff.; C. L. Woolley, *A Forgotten Kingdom* (Penguin Books, 1953), 90 ff.; *idem*, *Alalakh* (Oxford, 1955), 354 ff.; P. Åström, *The Middle Cypriote Bronze Age* (Lund, 1957), 216, n. 12.

[2] Sjöqvist, *loc. cit.* To his list of specimens found outside of Cyprus, add C 216 from Saqqara (H. B. Walters, *Catalogue of the Greek and Etruscan Vases in the British Museum*, Vol. I, Pt. 2, London 1912, 39).

was a large one and a complete excavation of it did not seem justified to Daniel.

All the information available about this rather indeterminate area, which will necessarily always remain something of a mystery, will be presented in the final publication[1]. A difficulty, however, which was encountered in the preparation of this information was that the sherd material comprising the well-stratified sequence referred to above could not, owing to the vicissitudes of the war years in Cyprus, be completely re-assembled for study and cataloguing. Since this stratification, particularly as a record of White Slip ware, is undoubtedly the most important information afforded by Area C, it seems more than justifiable to treat it as a special case by publishing separately the pertinent photographs left behind by Daniel. In this way attention is concentrated on them as a phenomenon worthy of attention for its own sake[2]. I have likewise taken this opportunity to focus special attention on the parallel evidence for the White Slip sequence offered by a particularly important early tomb from the Bamboula necropolis. Tomb 12 is not quite as closely stratified as Area C but for most of the period involved it affords complete examples of the shapes which are represented in Area C by sherds alone.

Before entering upon a discussion of the sherds themselves I wish to quote several paragraphs from Daniel's notes which may serve to bring the nature and problems of Area C to mind more vividly than I am able to do:

> " The remains in Trench 12, as also in the adjacent trenches 13 and 14[3], are quite distinct from those of the other areas within the settlement. Everywhere in this region we found evidence of deep artificial fill, containing very large blocks of rough-hewn or unhewn sandstone . . . [this] may have to do with a levelling in order to form a large market place. The source of the material of the fill is also uncertain. It may have been brought from the neighbouring summit of the hill, which would in that case also have been levelled at that time. The large sandstone pieces may be discard from quarrying incidental to that levelling. Where the ancient surface was preserved, it is quite regular, and care is obvious in the disposition of the big blocks.
>
> " This region has been greatly disturbed by treasure hunters. Due to the anomalous nature of the fill it was difficult to isolate all the disturbances, so that many areas which should no doubt represent pure

[1] Area C is included in the summary of stratification published by Daniel in " Prolegomena to the Cypro-Minoan Script ", *AJA*, 45 (1941), 270 ff.

[2] I suspect that it was Daniel's intention, in setting up what is here Pls. V and VI, to do just this; he catalogued (and thus preserved) a sufficient number of sherds of various kinds other than White Slip and Base Ring to allow an adequate study of the general complex.

[3] i.e., Area C.

Bronze Age fill contain a few later sherds. In the undisturbed areas we found sherd material which indicated that the fill was brought in at the beginning of the L.C. III period. There is a consistent low percentage of L.C. III sherds in a predominantly L.C. II deposit.

" In the central section of Trench 12 an area was isolated which is of an earlier date than the fill. Here again, the exact nature of the area is not clear. What appear to be house floors, of lime plaster with cuttings apparently for walls, lie at the bottom of the deposit. One section continued in use into the L.C. II period, the other was abandoned during the L.C. I [period]. Over the section abandoned at the earlier date we found a tall mound of stony, ashy earth, containing vast numbers of potsherds and many animal bones, mostly of large animals. Similar bones were found in the accumulation over the upper of the two L.C. I floors. The area was enclosed on the south, toward the floor which continued in use into the L.C. II period, by a row of upright stones ".

The Sequence

The earliest stratum from Area C is represented by pl. V, figs. 1–2 and was designated by Daniel as L.C. Ia: 1. White Slip I is illustrated by various sherds which exhibit a certain delicacy, if not exactly precision, in their execution and a pleasing simplicity of decorative concept. Other fabrics represented—in roughly the same proportion—are Base Ring I and Wash Ware[1]. In the following stratum (pl. V, figs. 3–4; pl. VI, fig. 1)[2] the same general distribution of wares continues and it seems possible to detect a slightly heavier and firmer touch in the handling of the brush. This provides on a more detailed scale an accord with the well-established general trend of development in decoration from White Slip I to White Slip II ware, viz., from a finer to a heavier, broader system[3]. Daniel designated this stratum as L.C. Ia: 2, which is the point at which the earliest burial period of Tomb 12 seems to set in (B 83 and B 98 are, however, as the earliest pieces in this period, probably actually representative of the L.C. Ia: 1 period, see below). This provides a number of complete or nearly complete bowls, and several jugs which reveal how the rather restrained decorative elements already encountered in the sherds were applied in the same spirit to entire shapes (pl. VII, figs. 1–10). Taken as a group, these pots have a certain buoyancy and elasticity of outline, variation (as in spouts and handles) and a variety of neat decoration, which renders them attractive. The

[1] For an explanation of the term " Wash Ware " as well as Daniel's account of the stratification which is the basis of my account, see reference in p. 62, n. 1.

[2] The large left-hand sherd is B 1205, of a possibly foreign fabric I designate as Diagonal Painted Ware.

[3] Cf. Sjöqvist, *op. cit.*, 50.

decoration is conceived tectonically, although not insistently so, and there is no sense of superfluity about it. The basis of the system is the decorative band around the rim (of bowls) from which the other elements literally depend. In the L.C. Ia: 1–2 periods this band shows considerable variation and liveliness. The main frieze may consist of a lozenge chain with the lozenges rendered distinctly and latticed, as B 81 (pl. VII, fig. 7) and B 83 (pl. VII, fig. 8), or run together into a cursive design, as B 72, B 74, B 75 and B 82 (resp. pl. VII, figs. 3–6). A subsidiary band at the rim may exhibit the same pattern (B 72), dots (B 75, B 82) or a wavy line (B 74, B 81). Wavy lines are also a legitimate motif for the principal frieze as on B 76 (pl. VII, fig. 1) and B 78 (pl. VII, fig. 2). In only one early instance (pl. V, fig. 2, upper left) do bands alone, without frieze design, constitute the rim decoration. The use of vertical dotted bands in connection with horizontal latticed lozenges binds together B 83 (pl. VII, fig. 8), a bowl, and B 98 (pl. VII, fig. 10), a jug, which also have a certain plumpness of shape in common. B 98 is associated with the very earliest burials in Tomb 12. The implied early date of these two pieces might seem to be underlined by Middle Cypriote features such as the lugs on B 83 and the characteristic shape of B 98[1]. The decoration of the latter is obviously experimental and produces a certain naively charming effect with its uncoördinated geometricization.

The jug B 96 is clearly an outsider in the company described above. Its decorative system is more like that of White Slip II than of White Slip I (as represented by the pots just discussed). Since the stratification of B 96, which occurs in what is probably the later stratum of the earliest burial period of Tomb 12, is not in doubt, it appears that this manner of decorating may have originated on jugs for there is no trace of it on the Area C contemporary bowl sherds. The virtual identity in shape and decoration of B 96 with British Museum C 253 confirms Sjöqvist's assignment of that jug to the White Slip I category[2]. Further evidence from Bamboula, however, indicates that this jug type was not confined to White Slip I but continued into the next stage (see below).

In the next level of Area C, illustrated by pl. VI, fig. 2, and designated

[1] Cf. Åström, *op. cit.*, fig. 10 : 5 and fig. 8 : 3, respectively (White Painted III–IV).

[2] *Op. cit.*, 45. See also Daniel's comments on this general problem in *AJA*, 46 (1942), 287. From the tenor of his remarks one might have expected him to regard B 96 as being in reality White Slip II ware but he does not seem to have done so. The same scheme of decoration occurred on a flat-based, round-handled bowl at Enkomi (T.2 : 50), dated " to the very end of Late Cypriote I " and classified by Sjöqvist as White Slip I. There is a slight inconsistency in the procedure of both Daniel and Sjöqvist in regard to this matter. It would seem logical to consider the cross-hatch band type of decoration as White Slip II altogether and to admit that it begins in the LC IA : 2 period. The absence of any bowl examples from Area C at this time may, of course, be accidental.

by Daniel as L.C. Ib, marked changes have taken place. The evidence from Area C for this period is clear and can be more easily followed than that from Tomb 12 which I shall discuss separately below. We observe that White Slip I continues, although its traditional schemes seem to be handled a little more carelessly, and that a new element has been added in the form of fully developed White Slip II bowls. Although proportionally in the minority in a ratio of about 1 : 2 (240 to 520 sherds, respectively), these furnish a decisive answer to the uncertainty which Sjöqvist was obliged to acknowledge on the basis of his evidence as to whether the White Slip II bowls do in fact begin in L.C. Ib[1]. Returning to the evolution of White Slip I and fixing our attention on the rim decoration as the key factor, we find that the wavy line seems to have become increasingly popular (see also B 93, pl. IX) and provides something like a counterpart to the band of cross-hatch as rim decoration which is the hallmark of White Slip II. Such a band sometimes serves as the upper boundary of a kind of shoulder frieze of lozenges strung out on tails, as B 132 (pl. VIII, fig. 5) or of dots, as B 137 (pl. VIII, fig. 3)[2]. The last-mentioned bowls occurred with the burials of Tomb 12 assigned to the L.C. Ib stage by Daniel (pl. VIII, figs. 1–11). On a statistical basis, the evidence from the tomb does not agree with that from Area C for this stage, since in the tomb White Slip II overwhelmingly preponderates. Is it conceivable that there was a gap in the use of the tomb or in the use of White Slip ware? Perhaps this is unlikely; nevertheless as I tried to interpret Daniel's account and drawings of the excavation, it seemed to me that objects from an earlier and a later period had been rather arbitrarily lumped together to fill such a gap and thus provide an L.C. Ib stage at any cost; moreover, the array of objects does not have the convincingly transitional character of the sherds in pl. VI, fig. 2. B 165, though its decoration is not well preserved, looks in its careless and inexact execution very much like a product of the L.C. IIa period or even later. Its presence here at least guarantees the continuance of the shape longer than was previously thought. The stratification of tombs is seldom as reliable as that of settlements and in this case, particularly in view of the small number of pots involved, excessive importance should not be attached to the discrepancies noted, however they may really be explained. At any rate, the absence of truly transitional bowls in Tomb 12 is puzzling[3] since the sister fabric, Base Ring ware, did yield transitional shapes between Base Ring I and Base Ring II (in the very stratum under discussion). It would lead too far to discuss here the development of Base Ring at Bamboula,

[1] *Op. cit.*, 108.

[2] The variations in rim patterns of both White Slip I and White Slip II bowls occurring at the site of Bamboula will be shown on a special plate in the final publication.

[3] As Daniel may have been aware, for he described *CVA*, Michigan, Pl. VI : 2 as "a bowl of apparently Wh. Sl. I shape but early Wh. Sl. II decoration".

especially since other tombs are heavily involved, so that this is best left to be considered in the final site report. However, to provide complete documentation, I have reproduced Daniel's photographs showing sherds of this fabric found in Area C for the L.C. Ib period (pl. X, fig. 1)[1] and for the L.C. IIa period (pl. X, fig. 2). Daniel indicated that the proportions of the two fabrics advanced identically and simultaneously (see reference in p. 62, n. 1).

The ultimate degeneration of the rim design in White Slip I is apparent in the examples from the latest stratum of Area C (pl. VI, fig. 3) which is to be considered in this paper, viz., that to which Daniel ascribed the date of L.C. IIa. In these the wavy lines have become quite erratic and the lozenge chain is cramped and unattractive. The elements of body design have degenerated also, although their total effect is one of greater elaborateness and perhaps pretentiousness than in earlier periods. Moreover, the ornamentation of this ware seems to have been applied in a somewhat slapdash manner corresponding well to the spirit of the contemporary White Slip II ware illustrated in pl. VI, fig. 4. The ornamentation of this latter ware is not only thick and careless on the whole, but remarkably monotonous. Its bowls tend to be of a single standard shape, as indeed was evident from the examples on pl. VIII. Its repertoire was not, however, confined to bowls, as the fragment of a krater or tankard at the lower left of pl. VI, fig. 4 shows. Moreover, it would be unfair at this point not to mention that many examples of a previously little known, original variation of White Slip II decoration were found at Bamboula. As none occurred in the two specific areas being dealt with here I shall simply make reference to a complete and well preserved specimen from the older excavations at Kourion, viz., British Museum C 238 (illustrated in *Catalogue of the Greek and Etruscan Vases in the British Museum*, Vol. I, Pt. 2, p. 43). I have designated it as a tree design for want of a better term, since it resembles a schematically drawn pine tree (see p. 67, n. 1). It may, however, be merely an abstract design achieved from the degeneration of the vertical lozenge chain and/or the dotted vertical wavy line, both of which motifs can be seen on B 93 (pl. IX). The tree design occurs in well over half a dozen instances at Bamboula (C 238, B 99, B 109, B 112, B 117, B 119, B 121, B 122) as well as at nearby Kouklia[2], although nowhere else to my knowledge. Such a concentration might well suggest that the application of this design to White Slip ware is a local phenomenon of Bamboula itself. The design, unless also invented there in

[1] The krater rim fragment in the upper left hand corner is B 1000, probably of Syrian provenance.

[2] *ILN*, May 10, 1952, p. 803, fig. 11. It is worth mentioning a fragment from Tell Abu Hawam which may possibly have this design; however, it is poorly executed and broken off at a critical point so that one cannot be sure: *QDAP* 4 (1935), pl. XXIII: f.

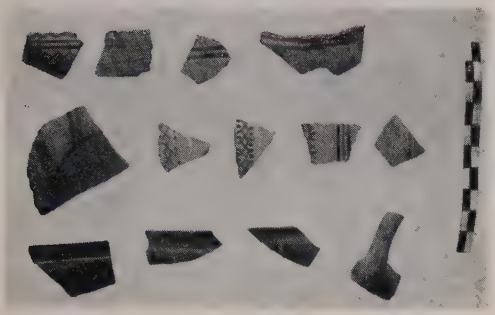


Fig. 1. LC IA: 1

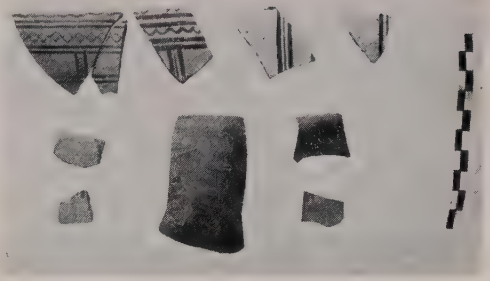


Fig. 3. LC IA: 2.

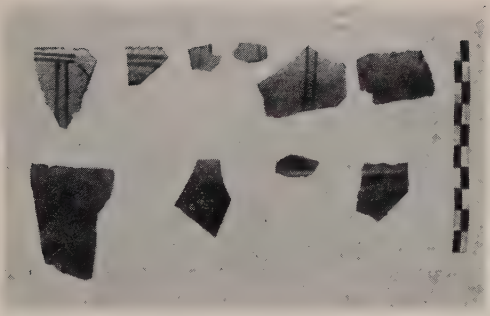


Fig. 2. LC IA: 1.

Fig. 4. LC IA: 2.

AREA C.

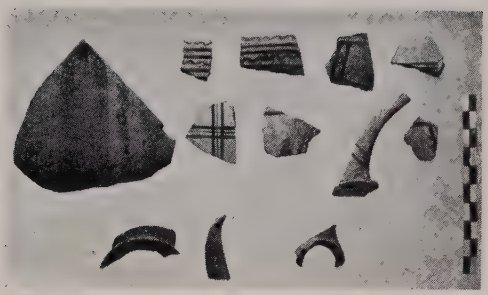


Fig. 1. LC IA: 2.

Fig. 3. LC IIA.

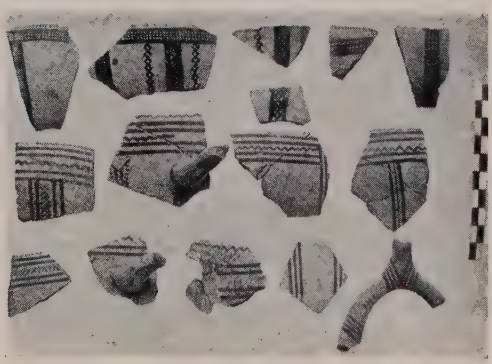


Fig. 2. LC IB

Fig. 4. LC IIA.

AREA C.

Fig. 1. B76. H: 11·5 cm.

Fig. 2. B78. H: 11·2 cm.

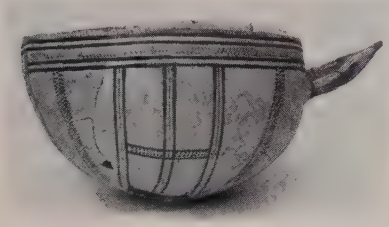


Fig. 3. B 72. H: 11·5 cm.

Fig. 4. B 74. H: 10 cm.

Fig. 5. B 75. H: 10·6 cm.

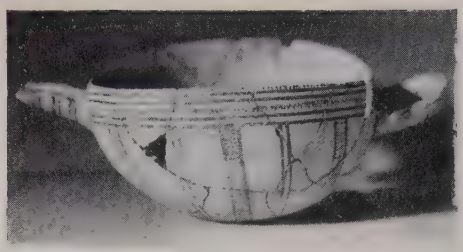


Fig. 6. B82. H: 8·3 cm.

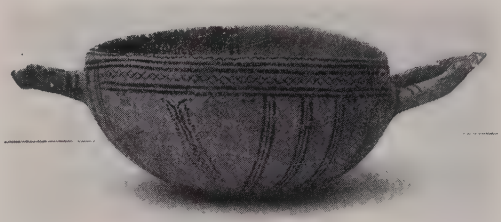


Fig. 7. B 81. H: 9·5 cm.

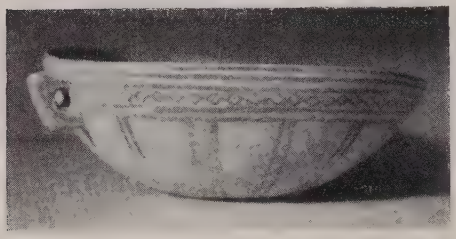


Fig. 8. B 83. H: 5·9 cm.

Fig. 9. B 96.
H: 24 cm.

Fig. 10. B 98.
H: 26·5 cm.

Tomb 12. Burial Periods A–B.. LC Ia: 2.

Fig. 1. B 77. H: 11·4 cm.

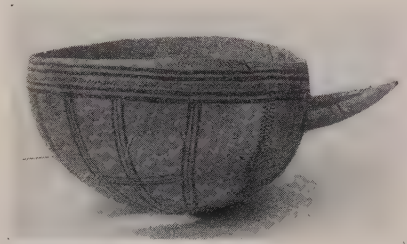


Fig. 2. B 73. H: 11·6 cm.

Fig. 3. B 137. H: 10·7 cm.

Fig. 4. B 136. H: 11 cm.

Fig. 5. B 132. H: 11·2 cm.

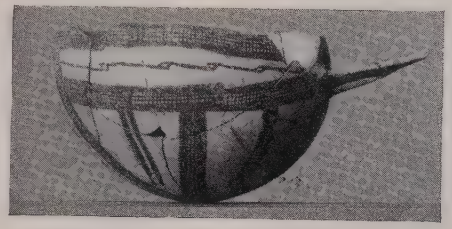


Fig. 6. B 135. H: 11 cm.

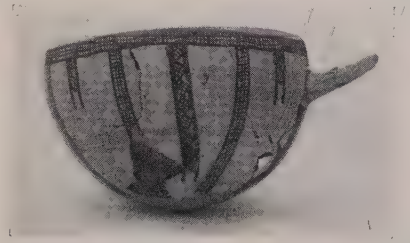


Fig. 7. B 138. H: 11·6 cm.

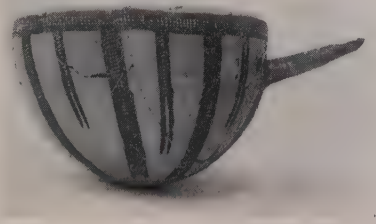


Fig. 8. B 140. H: 11·6 cm.

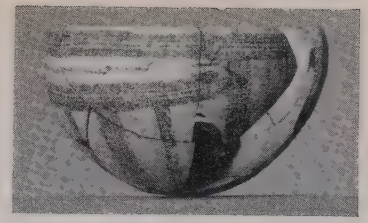


Fig. 9. B 133. H: 10·6 cm.

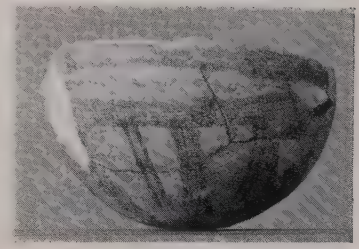


Fig. 10. B 134. H: 11·1 cm.

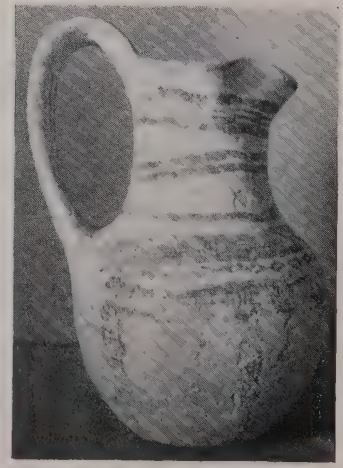


Fig. 11. B 165. H: 15·5 cm.

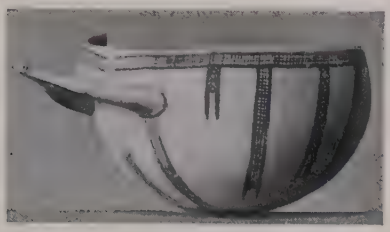


Fig. 1. B 130. H: 11·4 cm.

Fig. 3. B 131. H: 10·6 cm.

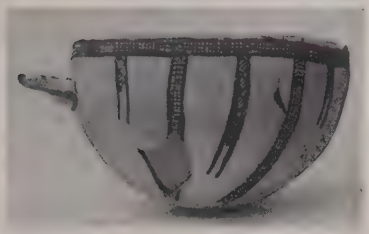


Fig. 2. B 139. H: 10·1 cm.

Fig. 4. B 100. H: 8·5 cm.

Tomb 12, Burial Period D, LC IIA (Figs. 1–3) and Burial Period E, LC IIB (Fig. 4).

Fig. 5. Area C. B 93 (LC IB).

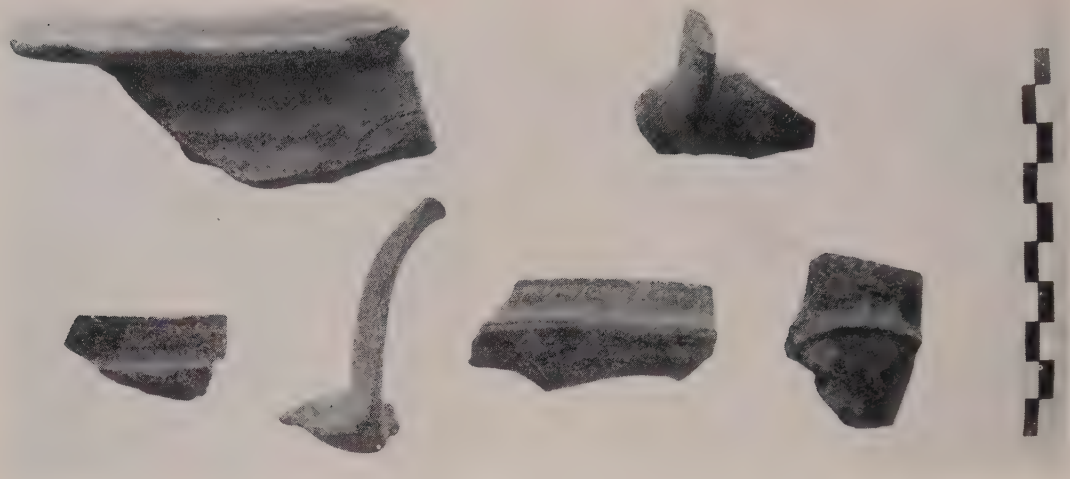


Fig. 1. LC IB.

Fig. 2. LC IIA.
AREA C.

the way suggested above, may ultimately derive from the Near Eastern repertory[1].

The White Slip II bowls assigned by Daniel to Burial Period D (pl. IX, figs. 1–2), that is, the L.C. IIA phase, agree stylistically with the sherds from the settlement (pl. VI, fig. 4). What is perhaps disturbing, however, is that these bowls seem cast in one mould with most of those assigned to the preceding Burial Period C, which tends to confirm the doubts expressed above about the validity of that burial period. There is an absence of White Slip I altogether; once again it is to Area C that one must go for exact evidence of the relationship of fabrics. There were 99 sherds of White Slip II as against 78 sherds of White Slip I. The proportions of the preceding level have begun to reverse; it is now White Slip II which dominates the field and its success was even more complete than these figures indicate. After this level, White Slip I sherds are entirely sporadic and can be explained as accidental left-overs of the previous production rather than as new creations. In Area C and generally at Bamboula, White Slip II continues to occur regularly, in the L.C. II period, not showing a marked decline until its L.C. IIC phase. It is not possible to illustrate further examples from Area C. A single example from Burial Period E of Tomb 12 (B 100: pl. IX, fig. 4) assigned to the L.C. IIB period, will reveal the tepid, disjointed spirit of the decoration and shape prevailing at that time.

Conclusion

The sequence discussed in this paper furnishes a firm basis for understanding the story of White Slip on a local basis at an important Cypriote site during a critical period. It is not feasible for me to place the sequence worked out here against the entire background of development of its time; that is the task of the historian of the Middle and Late Bronze Age in the Levant. By the same token I shall not try to project this sequence as universally valid. Nevertheless, since there can be no question of its internal validity and consistency, it affords a basis for at least tentatively commenting on the general problem alluded to in the Introduction.

At Bamboula the decoration of White Slip I is marked by a light, flowing effect realized by frequent use of wavy lines and small plain running lozenges which almost immediately are conceived of as a mobile x-series. There is variety and obvious experimentation in shapes. Toward the end of

[1] A kind of tree motif (branches turned both upward and downward) is incised on plain coarse wares from the end of the Early Bronze Age in Western Anatolia: Blegen, Caskey and Rawlins, *Troy* II (Princeton, 1951), pl. 245. The same designs occur on Middle and Late Bronze Age pottery of Atchana: *Alalakh*, pl. 86 : ATP/8/197–8. Branches turned up: G. Loud, *Megiddo* II (Chicago, 1948), pl. 45 : 19, Middle Bronze. But all these are different from the true tree design: cf. J. Duncan, *Corpus of Palestinian Pottery* (London, 1930), Decorated Fragments No. 16.

L.C. Ia: 2, closed crosshatching, which gives a more solid, stationary effect, is introduced, at first in clean neat terms, but as time goes on this design declines into a careless and rather slovenly routine, which also corrupts the more refined rendering of the earlier type of White Slip. It would perhaps be more clear to designate the closed cross-hatch style altogether as White Slip II, the flowing style as White Slip I, especially since these designations refer to a manner of decoration and not a period, for they continue side by side during L.C. Ib and L.C. IIa, after which only White Slip II is in evidence.

With such a picture in mind it would be fruitful to approach the pottery from Atchana and see how the alleged early finds compare with the earliest stages at Bamboula. Unfortunately, however, this is entirely impossible since none of these finds, in effect, is illustrated. The only illustrated early piece is a jug[1] attributed to Level V (1600?—1450) which is stylistically comparable (perhaps) with B 96. At any rate, with such a wide range for its period, the Atchana piece can be safely dated within the Cypriote scheme. However, precisely since Sir Leonard Woolley urges a non-Cypriote origin for White Slip I, it is essential to compare his pieces from Level VI (to say nothing of Level VII which seems on closer examination not to have had White Slip ware) with the earliest sherds from Area C. He describes a partly preserved bowl as being " of the normal ladder-pattern type ", a description which is inadequate but suggests to me bowls with pendant ladders like B 137 and B 140, which are already White Slip II in the conventional sense of the term[2]. Woolley's hypothesis that Cypriote potters were faced with imports (such as the bowl mentioned, presumably) which defeated their local products so that they consequently " set themselves to imitate them (the imports) with the same thoroughness as their forefathers had shown in the case of red polished pottery introduced from Anatolia " simply cannot be squared with the sequence as found at Bamboula. The potters there reached the stage postulated by Woolley for the 17th century in the 15th century at the earliest, and as a result of a comprehensible process within their own ceramic development. On this point I have already discussed several intimate connections between the earliest White Slip pots of Tomb 12 (B 83 and B 98) and Middle Cypriote prototypes. One might also mention the adaptation of the so-called " Latticed Diamond Style " (a useful term apparently coined by Åström) from the Middle Cypriote White Painted category to the rims of bowls. I suspect that a close study of all existing examples might reveal more such influences, which do point very strongly, if not irresistibly, toward the conclusion that White Slip I

[1] *Alalakh*, pl. 125 : ATP/39/80.

[2] The bowl *Alalakh*, pl. 125 : ATP/37/412 was originally called an early example of its type by Woolley in *Antiquaries' Journal* 18, No. 1 (1938), 19. It is, however, most comparable to the latest example of its type in Tomb 12 (pl. IX, fig. 4).

is a native Cypriote creation. What remains to be seen, although it cannot be tested until illustrations of the Atchana sequence are forthcoming, is whether the closed cross-hatch decoration introduced at Bamboula, as it seems, late in the L.C. Ia period, could possibly be the result of a retarded influence from Woolley's 17th century White Slip. This latter, as I indicated above, seems to be like the Cypriote design in question. On general principles, I regard such an explanation as unlikely, for it would presuppose that White Slip I and White Slip II—or something very close to it—were created more or less simultaneously in widely separated parts of the world, that is, Cyprus and some unspecified part of the Asiatic mainland respectively (cf. *Alalakh*, 369), and were then brought together to fructify each other. This may not be absolutely impossible, but it will seem improbable, I think, to most archaeologists who have worked intimately with White Slip I and II. The two fabrics do hang very closely together. Admittedly, it is fair to point out once again that the origin, or rather the inspiration, of the tree-motif in White Slip II pottery may ultimately be from Anatolia or Syro-Palestine.

It would be pointless to speculate about this matter further, as only a large-scale comprehensive study will reconcile the evidence from Cyprus and Atchana—if, indeed, it can be reconciled. What remains to be discussed is the absolute chronology of the Bamboula ware. I can be brief on this point, as there is no obvious external evidence available in connection with it which would throw new light on the existing hypothesis. In publishing his summary of stratification in 1941, Daniel accepted Sjöqvist's date of 1550 B.C. as the beginning of L.C. Ia. By the time of his death in 1948, he had changed this to 1600 B.C., although I do not know on what grounds. Recently Åström[1] has argued persuasively for the same terminus and I am inclined to accept it, all the more so since the Bamboula sequence offers a clear differentiation between L.C. Ia early and late. Therefore, it might seem convenient for the present to regard L.C. Ia: 1 as having lasted from 1600 to about 1550, and L.C. Ia: 2, which seems the longer period, from about 1550 to 1450. On this reckoning, the introduction of the close cross-hatch decoration might have occurred about 1500. These suggestions, though tentative, seem to me to rest on the best evidence available to date.

[1] *Op. cit.*, 972 ff. Cf. also review by S. S. Weinberg in *AJA*, **62** (1958), 441.

A NOTE CONCERNING THE FORM OF THE GEZER TABLET

By B. D. Rahtjen

Since the discovery of the Gezer tablet by R. A. S. Macalister in 1908[1], scholars have been trying to establish the station in life of the author of the tablet, and the purpose for which the inscription was made. The first scholarly opinion on the subject to appear in print was that of Professor Mark Lidzbarski, in the *Palestine Exploration Fund Quarterly Statement* for 1909[2]. His suggestion was that the writing was that of a peasant who merely wanted to " group and name the months according to their agricultural importance ". In his *Ephemeris für Semitische Epigraphik*, some six years later, Lidzbarski further explained his point of view. The author of the tablet, he said, was a farmer who happened to know how to write. This was a rather unusual skill for a man of the soil, and he was quite proud of his accomplishment. Desiring to keep in practice in his writing, he took the trouble to scratch a few words on a soft piece of limestone, with a sharp instrument. Since he had a rather limited horizon, he wrote of the thing he knew best, listing the months of the year in terms of their agricultural importance. December and January, which represented only a rest period for the farmer, were not included in the listing[3].

Sabatino Moscati, commenting on Lidzbarski's opinion in 1950[4], declared it to be the best that had come to light before it was established that there are twelve months listed in the text. The fact that the tablet appears to be a genuine calendar, he felt, made it necessary to look for a new hypothesis concerning authorship and purpose. After reviewing all of the suggestions made in the course of forty years' research, Moscati endorsed that of W. F. Albright[5].

On the basis of Egyptian and Mesopotamian parallels, Professor Albright decided that the tablet is the work of a schoolboy. Soft limestone would have been an appropriate medium for the writing of a schoolboy, and the size of the tablet indicates that a boy of twelve years could easily have held it in one hand. Albright felt that the marks on the surface of the stone

[1] See *Palestine Exploration Fund Quarterly Statement*, 1908, p. 271, for the first notice of the discovery. Photographs, transliteration and translation of the text, with critical notes by several scholars can be found in *PEFQS* for 1909.

[2] *PEFQS*, 1909, pp. 26–29.

[3] Most scholars today agree that all twelve months are represented in the text. For a full discussion of the grammar of the text, see the article by W. F. Albright in the *Bulletin of the American Schools of Oriental Research*, No. 92, pp. 16–26.

[4] *L'epigrafia ebraica antica*, 1935–50. Rome, 1951, pp. 8–26.

[5] *BASOR*, No. 92, pp. 16–26.

represent erasures of a previous text or texts, so that the stone could be reused, as a sort of copy book. The nature of the letters, no two of which are identical, seems to point to an author who was still learning how to write. As further evidence, Albright has called the attention of his readers to the nature of the text found on the stone. It is, he said, a mnemonic ditty composed of a tricolon (2+2+2), a second (3+3+3), and two cola (2+2). The text refers to three " double months ", three single months, one " double month ", and one single month. " For the grown peasant ", Albright concluded, " to whom the succession of agricultural activities was as familiar as the use of his senses, such rhythmic enumeration would have no importance; to a child who had not yet noticed the immutable sequence of activities, it would be just as useful as our familiar ' Thirty days hath September ' ".

Albright seems to have been correct as far as he went, but he left a number of questions unanswered. He said nothing about the irregular shape of the stone, nor the holes found in it, except to note the comment of Yeivin[1] that the stone might have been used as a door socket after it was inscribed. This possibility he dismissed very quickly, on the grounds that the tablet is of soft limestone, and only 1·6 cm. thick[2]. It is our suggestion that the history of the tablet can be reconstructed on the basis of an examination of its size, form, and markings.

The shape of the stone is highly irregular: its left side is nearly a straight line; the bottom has been broken off, leaving an irregular line; the top and the right side are somewhat rounded, but do not have a symmetrical shape. At the bottom of the tablet, where it has been broken, there are traces of a hole which was cut through from front to back. From what we can still see of it, the hole must have been cut in a rectangular shape. The back of the tablet shows the other side of the same hole. In passing through the stone, however, the hole decreases in diameter by about 50 per cent. The generally rectangular shape can be seen on each side of the tablet. In the back of the stone is another hole, just above the break at the bottom. It is nearly oval in shape, and has been fashioned in such a way as to connect with the square hole at the bottom, making a channel through the lower part of the stone. It might be noted at this point that the channel thus formed is just the size and shape of a child's finger. On the front of the tablet, on the right edge, is a small indentation. It appears at the place where the fifth finger of a human hand would grasp the stone, while writing on it with the right hand. Finally, it can be seen that the scribe has adapted his inscription to use all of the surface of the stone. He neither ran out of space, nor did he leave any part of the surface empty. The small projection in the lower left hand corner of the tablet was used as space for a signature.

[1] תלדות הכתב העברי, 1937, pp. 122 ff.

[2] The complete dimensions of the stone (as reported by its discoverer in *The Excavation of Gezer*, Volume II, p. 22 ff.) are $4\frac{1}{4}$ inches × $2\frac{1}{4}$ inches × $\frac{5}{8}$ inch.

Because the inscription seems to be complete as it stands, and is so carefully worked out on the available writing surface, we suggest that the stone has not been broken since it was inscribed.

Assuming, on the basis of the above evidence, that the author of the tablet was a schoolboy, we are faced with two interesting questions. First, what is the reason for the rather odd shape of the stone? Secondly, what were the functions of the rectangular hole, and the connecting channel? No one has offered an answer to the first question. In answer to the second, Macalister has suggested[1] that one of the holes was used to hang the tablet on the wall. He felt that it had been written by a farmer who displayed it on his wall in order to impress his friends with the fact that he knew how to write. However, if the tablet were to be affixed to a wall by either the rectangular hole or the smaller channel, it would be hanging upside down !

There is one hypothesis which allows all of the pieces of the puzzle to be fitted into place. Our tablet may have been at one time a part of a rather large block of limestone, which was intended for use in building. The rectangular hole may well have been cut into that block as a socket for the support of some kind of pole. In cutting such a hole in a limestone block, one wrong blow of the hammer or a flaw in the stone could cause a large piece of the upper surface of the stone to flake off. The piece thus removed would be flat on one edge, might well be irregularly rounded on the other side and the top, and would display part of a rectangular hole, or groove, at the bottom.

Such a piece of stone would then be discarded by the workman as useless. However, it would be of great value to a small boy looking for a tablet on which to practice his writing. Since the material is soft limestone, it could be used over and over again, by scraping the surface with a sharp instrument to remove what had been written. This process of scraping might give a schoolboy new ideas as to how his " writing tablet " could be " improved ". The scraping instrument could be used to carve in the edge of the tablet a notch to cradle the fifth finger, while the tablet was held in the hand. Such a relatively simple project might well be followed by one somewhat more complex. With a bit of skill and patience, a clever boy could carve in the back of the stone a curved channel the size and shape of his index finger, so that he could carry the stone from place to place by one finger. We know that whoever owned the tablet was interested in " decorating " it with his stylus, because the top and right-hand edges are covered with incised cross-hatching. The rest of the work we have suggested could easily have been done by the same boy. As schoolboys today carve initials into their wooden desks, he carved his stone tablet. As boys today mislay their belongings, so his tablet, with the last lesson intact, was mislaid, to be discovered some 29 centuries later.

[1] See *The Excavation of Gezer* (cf. n. 7).

REVIEWS AND NOTICES

Archaeology in the Holy Land. By Kathleen M. Kenyon. London: Ernest Benn. 1960. Pp. 326. 56 plates, 66 illustrations in text. 36s.

There are few people who can write so authoritatively on the archaeology of Palestine as Dr. Kathleen Kenyon, and there is none whose work is more highly appreciated by readers of the *Palestine Exploration Quarterly.* It is good that she has been able to spare some time from the preparation of the official reports on the Jericho expeditions to write a book like this, in which the results of recent archaeological research, not in Jericho only but in other parts of the Holy Land, are presented in a reliable and up-to-date manner not only to the interested general reader but also to the archaeological student.

The title of this work reminds us of Dr. Albright's Pelican book on *The Archaeology of Palestine.* Dr. Albright's book (first published in 1949) gave, for the most part, a picture of pre-war archaeology, for field archaeology in Palestine was practically at a standstill between 1936 and 1952. And while later editions of Dr. Albright's book have kept the record up to date, it retains its original framework. There was certainly room for another work giving adequate space to the discoveries of more recent years and to the assessment of their significance, and Dr. Kenyon has given us this book.

The story is told in chronological sequence: after an initial chapter on the setting of Palestine in Near Eastern history we are introduced to the origins of settled life, and thence we are conducted through the beginnings of civilization, the Proto-Urban period, the Early Bronze Age city states, the coming of the Amorites, the Hyksos, the Israelites, the Philistines (with whom we greet the Iron Age) and then on through the well-documented period of the Hebrew kingdoms to the exile and the Persian supremacy.

Jericho very properly bulks largely in this survey, not only because of the author's first-hand experience of excavation there, but also because Jericho still stands in splendid isolation in the period from the eighth to the fifth millennium B.C. But she points out that this isolation is illusory, not real; she is confident that in due course excavations elsewhere will fill in the picture and enable us to appreciate the whole stage of progress of which Jericho represents but a part, albeit an important part.

Dr. Kenyon adopts the designation "Proto-Urban" for the phase in Palestinian history between the Late Chalcolithic and Early Bronze Ages, marked by the immigration of tribesmen from different areas who established settlements which grew into the city states of the Early Bronze Age. This phase corresponds to what is called the Protodynastic period in Egypt and

the Proto-Literate age in Mesopotamia. Hitherto the Palestinian phase has received different designations from various archaeologists; the resultant confusion would be avoided were the apt designation " Proto-Urban " to be generally employed.

Again, she distinguishes a Palestinian stage between the Early and Middle Bronze Ages comparable with the First Intermediate of Egypt (which follows the end of Dynasty VI). This intermediate stage in Palestine was already recognized by Sir Flinders Petrie, who found a number of tombs of distinctive character at Tell Ajjul in 1931 which he ascribed to the " Copper Age "; Dr. Kenyon thinks it would be more accurate and less misleading to call it the Intermediate Early Bronze-Middle Bronze period. A new type of pottery makes an abrupt appearance at this point, introduced by newcomers who are identified with the Amorites.

But we cannot go on indefinitely enumerating the matters of interest and importance which are brought to our attention in every chapter of this book. Suffice it to say that Dr. Kenyon's book supersedes all other comprehensive surveys of Palestinian archaeology from the earliest times to the advent of the Hellenistic period.

An appendix lists the principal sites referred to in the body of the work, with a summary of the excavations conducted at each and a short bibliography.

On p. 113, line 22, " north " is plainly a slip for " south ".

F. F. B.

Les Institutions de l'Ancien Testament. II: *Institutions militaires; Institutions religieuses.* By R. de Vaux, O.P. Les Éditions du Cerf, 29, boulevard Latour-Maubourg, Paris. 1960. Pp. 544. 19·90 NF.

The first volume of this work was reviewed in the *Quarterly* for July-December, 1958; the second and concluding volume has now come to hand. In some 80 pages it gives an account of military institutions in Israel in Old Testament times; the remainder of the volume (over 400 pages) is devoted to a study of Israel's religious institutions. The two volumes together provide a handbook of high value to Old Testament studies.

The first part of the second volume discusses the armies of Israel (the popular levy and the later professional force), fortifications and siege warfare, weapons of offence and defence, the customs of war, and the institution of holy war (from the earliest days to the Qumrân *Rule of War*).

The second part is of quite outstanding importance. Here we have an account of Semitic sanctuaries in general and Israelite sanctuaries in particular, the Jerusalem temple and the centralization of worship, priests and Levites, altar and sacrifice, prayer and purification, the sacred calendar. It is difficult to think of any of the religious institutions of Israel which is not dealt with here.

In both parts of the volume Père de Vaux naturally brings his vast

archaeological experience to bear upon the subject-matter. But he shows himself throughout to be a penetrating exegete and theologian as well as archaeological commentator on the biblical text. He has a mind of his own on the various aspects of his subject-matter, particularly those which have been debated with greatest animation in recent years. Was there a feast of the enthronement of Yahweh? Were there cultic prophets, and if so, what part did they play in the religious life of Israel? Does the polemic against sacrifice in the writings of Israel's pre-exilic prophets imply an outright condemnation of the institution of sacrifice as such, or only of its current misuse? Did the Davidic kings exercise priestly functions in the temple at Jerusalem? If so, were these functions a continuation of the pre-Davidic cult of 'El 'Elyon? What was the origin of the sabbath? Père de Vaux burkes no issues: where he thinks the evidence points clearly to one conclusion, he states that conclusion; where the matter must be left in doubt, he tells us so and tells us why.

Père de Vaux is not going to rest on his laurels now that he has brought this work to a praiseworthy conclusion; the prospectus of *Études Annexes* to *La Bible de Jérusalem* (the series to which this work belongs) informs us that he has also in preparation for it a work on the *History of Israel*.

The present volume contains a comprehensive bibliography and detailed indexes to the two volumes.

On pp. 239 and 240 " Josias " appears twice for " Joas ".

F. F. B.

The Northern Boundaries of Judah from the settlement of the tribes until the beginning of the Hasmonaean period. By Zechariah Kallai. Jerusalem, Israel: Magnes Press, Hebrew University. 1960. Pp. xii + 116 + xii. 8 maps.

This work (written in Hebrew, with an English summary) was originally prepared as an M.A. thesis in the Hebrew University, but has received further revision. It falls into two parts, dealing respectively with the First and Second Commonwealths. In the first, the dating of the sources is a preliminary task. But in tackling it the author does not base his conclusions on literary analysis so much as on historical and geographical data. He argues that the primary meaning of Heb. *gebul* is " territory ", that " boundary " is only a secondary meaning.

Three phases are distinguished under the First Commonwealth—the period up to the reign of David, the kingdom of Judah under the divided monarchy, " Greater Judah " from the fall of Samaria onwards. The Old Testament boundary-lists for the most part represent the settled conditions which were " formalized by the census of David ".

In the second part of the work the literary evidence is scanty: there is the problematic town-list of Nehemiah xi and the list of Bacchides' strongholds

in Judah (I Macc. ix, 50 ff.). Mizpah is shown to have been within the frontiers of Judah; the district of Mizpah was in fact " the continuation of the enlarged land of Benjamin of Josiah's times ". The study ends with the cession by Demetrius II of the districts of Aphaerema, Lydda and Ramathaim—an action which, in the author's view, was a formal acknowledgment that these districts were in fact Judaean.

OBITUARY

J. H. ILIFFE

John Henry Iliffe, O.B.E., M.A., F.S.A., died on October 18, 1960, at the age of 58 and only two years after he had resigned his post as Director of the Liverpool Museums because of ill health, perhaps some delayed effect of a nearly fatal wound he suffered from a would-be assassin in Jerusalem in 1939. He was well known as Keeper of the Palestine Archaeological Museum there from 1931 until 1948; he organized its collections and arranged their exhibition in the new building which was provided through the munificence of the late John D. Rockefeller, Junr., and opened in 1938; and he remained in charge during the summer of civil war which followed the surrender of the British mandate in 1948. Then he went to Liverpool, looking forward to reconstituting the Corporation's museums in buildings to be designed and erected to replace those destroyed during the war. But to the chagrin of having seen his familiar Jerusalem fall apart was now added that of seeing his plans in Liverpool recede from year to year, though for the most practical of reasons.

From 1950 until 1955 he and Mr. T. Bruce Mitford collaborated on behalf of the Corporation of Liverpool and St. Andrews University respectively in organizing and directing a series of excavations at Kouklia or Old Paphos, which in Greek times was noted above all other places in Cyprus for its cult of the Lady of Paphos, Aphrodite. Mr. A. H. S. Megaw, then Director of Antiquities in Cyprus, writes: " the dig revealed the importance of Aphrodite's city in the Bronze Age (though the new finds prove that the goddess was so named only at a surprisingly late date in its history) and, from the debris of an archaic sanctuary (of a male god incidentally, nameless, as was Aphrodite at that stage) built into a Persian siege-mound in 498 B.C., recovered statuary of high quality and syllabic inscriptions of exceptional interest ". Till here, too, a threat of political violence loomed large, these annual excursions not only enriched the public museums of Liverpool (as well as of Cyprus) but gave their director a new lease of life.

It was in the Levant that Harry Iliffe felt most at home, for he relished the life of the Mediterranean world in all its facets from the crude to the polished. He mastered Arabic, and he was a strenuous and happy traveller who came to know both sides of the Jordan well, even on foot as occasion offered. During a period of intense archaeological activity throughout the Levant he managed to visit practically every excavation of note; those in Palestine he followed in detail since it was his particular duty, in the Department of Antiquities, to make a representative selection from their finds for the

Museum in Jerusalem. Yet, so far as I know, he was always on the best of terms with those of various nations whom he had to deprive of their hard-won treasures, such was his sympathy and respect for their endeavours as fellow-workers on the frontier of knowledge. During those years down to the outbreak of armed rebellion, most phases from the prehistoric to the Moslem were under careful investigation, and something like 100,000 objects of all kinds were garnered in the Museum, almost all of which are docketed according to their place and association in some controlled archaeological excavation.

Iliffe's wide experience, added to his work as a classical archaeologist at Cambridge, Athens and Toronto, pre-eminently fitted him to attempt an evaluation of that rich harvest (on lines such as Dr. Kathleen Kenyon's new book, *Archaeology in the Holy Land*) if he had had but the strength and opportunity unabated by the welter of politics and war. As it was, he contributed to the *Quarterly of the Department of Antiquities in Palestine* on a wide range of subjects, gathered the fruits of his travels into his *Sigillata Wares in the Near East: a List of Potters' Stamps* (Oxford, 1937), and for the use of visitors to the Museum he produced a valuable short *Guide to the Stone and Bronze Ages in Palestine* (Jerusalem, 1949). But it is that incomparable Museum itself, in the planning of which he had some share with the architect, Mr. Austen St. Barbe Harrison, and for the arrangement of which he was entirely responsible as the head of a mixed staff, Arab and Jewish, that must be his monument. May it, as he would have wished, become better known to all who try to unravel the long and tangled story of that land which was the cross-roads of the ancient and medieval world.

On behalf of all of us who used to know him may I express to Mrs. Iliffe and David our very sincere sympathy.

C. N. J.

LE TRÈS RÉVÉREND PÈRE LOUIS-HUGUES VINCENT, O.P.

(1872–1960)

The news of Père Vincent's death at the age of 88, on December 30th of last year, brings to an end the first, and perhaps the most glorious, chapter in the history of the Dominican *École pratique d'études bibliques*, more commonly known as Saint-Étienne. On November 15th last the school celebrated its seventieth birthday and of these seventy years Père Vincent had been a member of the community for all but a few months. There were, at various times, absences, the result of two world wars and a considerable degree of ill-health, but, throughout most of the period, Vincent was working indefatigably, and perhaps keeping the school before the eyes of the outside world more completely than any other member of the staff. His great master, Père Marie-Joseph Lagrange, the founder of the school, certainly

wrote more books, and probably wrote more articles and reviews than his favourite disciple and best beloved friend, but Vincent, as an archaeologist, who, during most of his working life, had examined every important excavation in Palestine and the neighbouring countries, may well have been brought into contact more frequently with many types of men. The contrast between the two scholars went deeper than this, in so far as Lagrange had a more universal mind and a fuller experience of practical affairs, but had a less attractive style as a writer and lecturer. His utterance in lecturing or preaching was somewhat slow and usually very quiet, whereas Vincent, both in public and in private, spoke with great rapidity and enormous verve. One might apply to him the famous description of the young Disraeli, who "talked like a racehorse approaching the winning-post". But likenesses also abounded, and each of these great men, the powerful and massively-built Lagrange, and the smaller and delicate Vincent, seemed to have been everywhere in the Middle Eastern lands, to have seen everything, and to have read everything.

It is doubtless a coincidence that both men began to be famous at the relatively early age of thirty-five—Lagrange when he founded the *École biblique* in 1890; Vincent when he published his first long book in 1907, the notable *Canaan d'après l'Exploratiom Récente*. Some sixteen years later he discussed this book with me in some detail, and pointed to various chapters that already called for revision. At the same time he gave me some valuable hints about supplementary reading, most of it to be found in the pages of the *Revue Biblique*. Whereas Lagrange's advice about books was at times hesitant and heavily qualified, Vincent had the rare power of giving the quintessence of a book in a single sentence, and, after nearly forty years, not a few of these sentences still linger in the memory.

In 1912, almost on the eve of the first world war, came the largest and finest of all his books, the classic work *Jérusalem*, with the sub-title: *Recherches de topographie, d'archéologie, et d'histoire*. The first fascicule, issued with the co-operation of the Académie des Inscriptions et Belles Lettres, was the *Jérusalem Antique* (Fascicule I: *Topographie*), which was entirely the work of Vincent himself, and was to remain for over forty years the only part devoted to Old Jerusalem. The remaining fascicules issued in the years between 1914 and 1926 were the four parts of the second volume, *Jérusalem Nouvelle*, in which Vincent had as his fellow-worker the late Père F. M. Abel, O.P., his junior by some years, who was to predecease him. The titles of some of these parts (Aelia Capitolina; Le Saint-Sepulcre et le Mont des Oliviers; La Saint Sion; Sainte Anne et les Sanctuaires hors de la Ville) should be enough to whet the appetite of those who are not already familiar with them.

The collaboration between Vincent and Abel resulted in some other works of great value, such as those on Bethlehem, Hebron, and Emmaus. Each of these experts was a man of firm and independent scholarship. At

times they differed, notably on the question that remained for so long without solution, that of the place of Pilate's judgment-hall. Even after Vincent had convinced so many people of the soundness of his views, Père Abel did not see good reason to acquiesce in the finding.

Meanwhile, the great work of teaching and reviewing went on in spite of the interruption of the second war, and the final volumes on Jerusalem, entitled *Jérusalem de l'Ancien Testament*, were completed with the help of Vincent's disciples, and published respectively in 1954 and 1956. To one who had followed Vincent's brilliant series of lectures on the Jerusalem Ḥaram it was a great satisfaction to have the completed work with all the wonderful apparatus of photographs and plans to assist in the understanding of a complicated enquiry.

Some thirty years after my departure from Saint-Étienne I was privileged to revisit Jerusalem in the summer of 1954 and to have renewed talks with Père Vincent. By that time he was in his eighty-third year, and was complaining of failing sight, and difficulty in descending stairs, as a result of an accident some time before this. An altar was set up in the sitting-room on the first floor, and there he was able to celebrate. His wonderful memory and his zest for every kind of learned undertaking were quite undiminished. He told me many stories of the old life in Jerusalem in Turkish days and during the period of the British mandate. I saw him again in 1956, when he seemed a little feebler, but otherwise unchanged, and again in October, 1959, when sight, hearing and the power of walking had all been fading quickly. I did not stay long with him as I was afraid too long a session might tire him. He said more than once: " Que le bon Dieu me prenne ! " Unlike his great master Lagrange, who lectured and taught almost to the end of his life of eighty-three years, he could no longer work at his favourite studies and was dependent upon others for news of the world of scholarship.

His friend of many years, the renowned Père Roland de Vaux, wrote to me on January 13th: " Il a rejoint auprès du Seigneur le groupe de nos grands anciens et il nous protège, mais nous sentons douloureusement son départ; c'est le dernier lien qui se rompt avec nos origines."

Pater amantissime, desideratissime, vivas cum Christo.

John M. T. Barton.

The Committee have to acknowledge with thanks the following:

Books and property from the late Dr. Wheeler's collection, presented to the P.E.F. by Mrs. Wheeler, 25th October, 1960.

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THE PALESTINE EXPLORATION FUND

NOTES AND NEWS

When the 1958 volume of the *P.E.Q.* was dedicated to Professor S. H. Hooke, the retiring Editor, mention was made in the Epistle Dedicatory of his tenure of the Speaker's Lectureship in the University of Oxford (1956–61). The substance of these Speaker's Lectures has now been published as a volume in " The Library of Constructive Theology ", under the title *Alpha and Omega: A Study in the Pattern of Revelation* (Nisbet, 21*s.*). Here we have the quintessence of Professor Hooke's long years of study and reflection in the biblical field, in comparative religion and in the use of images as a mode of conveying the highest truth. It is no disparagement of his earlier writings to say that this is the finest thing he has written thus far. It is an introduction to the Bible at a deeper level than other introductions have attempted to reach.

The discoveries by Israeli archaeologists in the Dead Sea region, mentioned on pp. 84 f. of the *P.E.Q.* for July-December, 1960, have now been more fully examined. An interesting account of them was given by Dr. Meir Wallenstein of Manchester University in *The Guardian* of February 3 and 4, 1961. The papyrus package found in the goatskin bag proved to be of special interest. When it was opened by Professor Biberkraut it was found to contain fifteen letters, of which one was written on wood and the rest on papyrus. The letter on wood is in Aramaic and begins with the words: " Simeon Bar-Koseba, Prince of Israel, to Jonathan and Masabalah." Like Yeshua Ben-Galgolah in the Murabba'at letters, Jonathan and Masabalah were evidently lieutenants of Simeon, commanding an insurgent garrison in the Engedi district. He addresses them in the same peremptory and threatening tone as he uses to Yeshua: " If you do not carry out my orders, severe treatment will be meted out to you! "

Of the fourteen letters on papyrus, nine are in Aramaic, three in Hebrew, and two in Greek. Most of them are addressed to Jonathan and Masabalah by Simeon or members of his staff. Their trilingual character sheds interesting light on the linguistic situation in Judaea at that time.

Dr. Wallenstein thinks that this correspondence must belong to the closing stage of the war of A.D.132–135, when conditions for the insurgents were becoming more and more difficult. This appears from one letter which orders the reaping of whatever grain is ripe before the normal time of harvest

and the despatch of it to Simeon's headquarters. Even if conditions were difficult, the insurgents did not forget their religious duties; another letter gives directions for making due preparation for the Feast of Tabernacles.

A further expedition in the same area in March 1961 has led to fresh discoveries, which promise to be of exceptional importance. In the Wadi Heber, where the earlier discoveries were made a year before, the expedition found a complete parchment scroll, a papyrus scroll, and scores of crumpled and folded papyri; while in the Wadi Mishmar, four miles away, there came to light a cache of 439 objects of copper, bronze and ivory, including implements of war and ritual equipment, possibly captured from the Romans. The first ten of these more recently discovered papyri to be opened proved to be dated legal documents from the period of the war of A.D.132–135. Other discoveries indicate that this region had undergone at least two earlier periods of human settlement—in the Chalcolithic and Early Israelite ages. But the occupation of the caves during the war of A.D.132—135 far exceeds the earlier periods of settlement not only in the wealth of material left behind but also in sheer human interest: the insurgent units were evidently blockaded there by the Romans until they perished of thirst.

Another interesting manuscript discovery in Palestine has recently been reported. Professor Morton Smith of Columbia University, New York, was studying ancient documents at the Mar Saba monastery (some 12 miles south-east of Jerusalem) nearly three years ago, when he happened upon something of exceptional interest. On the back of the leaves of a Dutch book, printed in 1646, he found a handwritten copy of a Greek letter which on stylistic grounds he would assign to Clement of Alexandria (fl. A.D.180). The copy of the letter was written in a 17th or 18th century hand, probably by a monk. The letter includes an account of the raising of Lazarus (which in the New Testament is recorded only by the Fourth Evangelist) said to be taken from a " secret " Gospel of Mark. Salome (who is mentioned among the witnesses of the crucifixion in Mark xv, 40) is here said to have been present at the raising of Lazarus. Professor Smith communicated his discovery to the 96th meeting of the Society of Biblical Literature and Exegesis held at Union Theological Seminary, New York, in December 1960. Until it is published, we must suspend judgment, although we gather that some patristic scholars who have been shown the document are inclined to agree with Professor Smith's ascription of it to Clement of Alexandria. The fact that the Gospel mentioned in the letter is described as a " secret " one, together with the part played by Salome (who in several apocryphal Gospels plays a more prominent part than she does in the canonical four), strongly suggests that here we have evidence of yet another survival of Gnostic literature.

The Hebrew University Bible Project, attached to the Institute of Jewish Studies, aims at the production of a new critical edition of the Hebrew Bible. This edition will present the Massoretic text according to the Aleppo Codex of the Ben Asher school (so far as it is now available), together with a comprehensive apparatus based on all known sources for the Hebrew text and the ancient versions. The project, which was adopted by the World Union of Jewish Studies at the Second World Congress of Jewish Studies in the summer of 1957, publishes an annual with the title *Textus*, which aims at being not only the organ of the Project but also an international periodical for the textual study of the Hebrew Bible and its versions. Volume I of *Textus* has appeared (1960) under the editorship of Dr. C. Rabin with a foreword by President B. Mazar of the Hebrew University. It includes three important articles on the Aleppo Codex, the first being contributed by the President of Israel, Dr. I. Ben-Zvi. He tells how the Codex, which it was feared had been destroyed or irretrievably lost in the events of 1947–48, has been found (unfortunately in an incomplete condition) and is now in safe keeping. Dr. M. Goshen-Gottstein discusses the identity of the recovered codex with the famous Aleppo codex, and comes to a positive conclusion on this point, as he does also with regard to its right to be accepted as a witness to the Ben Asher text and even with regard to its being the manuscript which Maimonides used as a basis for setting out the rules for copying scrolls of the Torah. The relation between the codex and the Ben Asher text is further studied by Dr. D. S. Loewinger. Professor G. R. Driver writes on abbreviations in the Massoretic text and Dr. S. Talmon on double readings in the Massoretic text. Dr. A. Diez-Macho discusses a new fragment of Isaiah with Babylonian pointing, and Dr. I. Yeivin gives an account of a genizah fragment of a Massoretic treatise.

A new kind of " Palestine exploration " is described by Mrs. Frances W. James, of the University Museum of the University of Pennsylvania, in the Museum's journal *Expedition* for Winter 1961 (Vol. 3, No. 2, pp. 31 ff.). She tells how remains of Beth-shan, excavated in the twenties, are now being " re-excavated " in the basement of the Museum in Philadelphia and encouraged to tell their story and make their contribution to the reconstruction of Palestinian history. Mr. Alan Rowe, who took part in the Beth-shan excavations in the twenties, comments on Mrs. James's article on a later page of this issue of the *Quarterly*.

In the *Bulletin of the John Rylands Library*, **43** (March, 1961), pp. 480–491, Alan Rowe describes the derivations of the nomenclatures of the cultures of the Egyptian Palaeolithic, Neolithic and Cuprolithic Periods, the earliest culture dating between 500,000 and 250,000 years ago and the latest one ending 3000 B.C., when the First Dynasty began. Included in the monograph

are useful bibliographies, the classical names of certain sites, as well as a brief description of the burial customs of early times in the Nile Valley; it is the first of a new series entitled " Studies in the Archaeology of the Near East ". The general style of the article follows that of the same writer's " Provisional Chronological Table of the Prehistoric and Historic Ages of Palestine ", in *P.E.Q.* **86** (1954), pp. 76 ff. It is noted that the earliest human remains so far found in Egypt belonged to the commencement of the Upper Palaeolithic Period (actually the Epilevalloisian culture) while those in Palestine were in a cave with the much older Final-Acheulean deposits, belonging to the close of the Lower Palaeolithic Period. An interesting reference is made to the Mesopotamian ziggurat, a stepped structure which was supposed to facilitate the descent from heaven to earth, and the ascent from earth to heaven, of the god, recalling not only the ladder (*sullam*) seen by Jacob in his dream, upon which the " angels (*mal'ak*, ' divine messengers ') of God " were ascending and descending (Gen. xxviii, 12), but also another ziggurat, the Tower of Babel, *i.e.* " Gate of God " (Gen. xi, 4–19); *cf.* further the descent of the Lord on Sinai (Ex. xix, 20). It also recalls in a way the stepped pyramids of the Third Dynasty (2778–2723 B.C.), which were believed to be the means whereby the divine and dead pharaohs commenced their respective journeys to the celestial regions above. Stepped mastabas were also known in Egypt, these dating from the First to the early Fourth Dynasties (3000–2750 B.C.). Mr. Rowe suggests that as during the Late Gerzean culture of the Cuprolithic Period and the beginning of the First Dynasty of Egypt this country was in contact, via Syria and Palestine, with the Jemdet Nasr culture of Mesopotamia (*cf.* in *P.E.Q.* **87** (1955), pp. 176 f.) it is perhaps possible that the latter culture introduced into Egypt the *idea* of a stepped structure, employing it there only in a sepulchral connection. The earliest ziggurat known, the archaic one consecrated to the god Anu at Uruk, the Erech of Gen. x, 10, dates not later than *c.* 3250 B.C., while, as already indicated, the first stepped mastaba known dates from about 3000 B.C.

In *The Biblical Archaeologist* for May 1961 there is an interesting account of " The Link Marine Expedition to Israel, 1960 " by Professors C. T. Fritsch and I. Ben-Dor. This expedition receives its name from Mr. Edwin A. Link, who designed and supervised the construction of *Sea Diver II*, a vessel of 91 ft. and 168 tons, specially built for underwater archaeological and recovery work. The expedition was sponsored by the American–Israel Society and Princeton Theological Seminary, with further financial aid from the American Philosophical Society and *Life* magazine, and with the ready cooperation of the Department of Antiquities of Israel. The first area to be explored was the harbour of Caesarea. The circular breakwater enclosing the harbour was charted and the entrance on the north side was located. Among a number of interesting objects found was a whole Roman amphora of the 2nd century A.D., protected by a large wooden beam from

damage by huge stone blocks which had fallen above it. The discoverers suggest that an earthquake recorded for the Caesarea area in A.D. 130 may have destroyed Herod's harbour installations. Another find of great importance was a unique coin or medal depicting the port of Caesarea and possibly issued to commemorate some special occasion in the history of the city in the 1st or 2nd century A.D. The expedition confirmed recent conclusions reached by geological surveys, that the sea level has risen about 5 metres along the northern Palestinian coast during the Christian era.

The Lake of Galilee, where the expedition worked for six weeks with the *Reef Diver* (a smaller edition of *Sea Diver II*), also appears to have been considerably lower in Roman times than it is now. For example, about 75 ft. off shore from Magdala there was found a wide strip of paving, some 30 ft. wide and 300 ft. long, submerged 15 ft. beneath the surface of the water. A number of Roman cooking pots and other earthenware vessels were dredged up in one area together with two oval stone anchors, in circumstances which suggest that a cargo of new pottery suffered shipwreck while being transported across the lake. It is plain that this new technique in archaeological exploration is going to present us with much interesting information.

More recently, on June 19, it was announced that a University of Milan expedition has discovered at Caesarea a stone (presumably from a public building or statue) inscribed with the name of Pontius Pilate. This is described as the first archaeological reference to Pilate (who, of course, had his headquarters at Caesarea during his procuratorship of Judaea, A.D. 26–36).

We have received from Dr. F. C. Fensham of the University of Stellenbosch, who contributes a short paper to the present number of the *Quarterly*, a copy of the proceedings at the second meeting of the Society for Old Testament Study in South Africa, held at Potchefstroom in February 1959. (The Society was founded in December 1957.) Most of the papers read at the second meeting dealt with various aspects of the Book of Judges. The titles include " The Title 'Judge' " (A. van Selms), " The Period of the Judges " (L. M. Muntingh), " The Judges and Ancient Israelite Jurisprudence " (F. C. Fensham), " The Relationship of the Israelite Tribes to the Indigenous Population of Canaan according to the Book of Judges " and " The Message Formula in the Book of Judges " (both by A. H. van Zyl), " Geographical Terms in the Book of Judges and their Translation " (J. P. Oberholzer) and " Who were the Hivites? " (I. H. Eybers). The conclusion of the last-named paper is that all the Old Testament references to Hivites and Horites alike are transcriptions of one and the same original name, denoting the people whom we nowadays know as the Hurrians.

A year ago we mentioned in " Notes and News " that the Palestine Exploration Fund looks forward to celebrating the centenary of its foundation

in 1865. A Planning Committee has been set up to arrange for the celebration, with Miss Olga Tufnell as Convener. We hope to report the progress of our plans in "Notes and News" between now and 1965. The principal event will be an Exhibition illustrating the activities and achievements of the Fund during the first hundred years of its existence. Meanwhile Miss Tufnell would be grateful for co-operation from interested bodies and suggestions from subscribers to the Fund and others who have a concern for Palestinian exploration and archaeology.

THE IDENTITY OF SOME TREES MENTIONED IN THE BIBLE

By A. C. Western

There is a great deal of uncertainty about the identity of many trees mentioned in the Bible, and one of the chief reasons for this is that the books were written, and translated until at least the 18th century, by scholars with no knowledge of scientific nomenclature. Trees were therefore given their local names in the texts, and apparently translators often followed the same practice, until the last hundred years or so, with the result that confusion has arisen and it is difficult now to remove some traditional misconceptions. The problem is, to a considerable extent, one of linguistics, with which I am not competent to deal, so it seems best to compare certain translations (the Authorized, the Revised Standard and Moffatt versions have been chosen) and to consider these in the light of our knowledge of the flora and ecology of the area, and of the views of botanists. Even modern Hebrew and Greek scholars seem to disagree quite markedly about the correct meaning of various words and passages dealing with trees in the Bible, so botanical likelihood or possibility may sometimes provide a firmer basis.

Scholars have written about the flora of the Bible for many centuries, often with no knowledge of actual conditions in the countries involved, and the first to go to Palestine to study the flora of the country in the field was Hasselquist, a student of Linnaeus, in 1749. Unfortunately he died after only four years' work, but his discoveries were published in 1757 by Linnaeus, and form the first publication on this subject from the scientific angle, being followed by a long series of books and articles of varying reliability. Some of these have repeated, and thus confirmed and strengthened, some old ideas which now appear to be without foundation. The great artists of the Renaissance and their successors have also played their part in strengthening some of these traditions. An example of this is the Tree of Knowledge in the Garden of Eden, which to us is traditionally an apple, because we are accustomed to it being represented thus by Titian, Rubens and Tintoretto. Raphael and the Van Eycks show a fig, and other alternatives to the tradition in other countries are that the fruit of the Tree of Knowledge was the date or the citron, while Moffatt and the Authorized Version give it merely as "the fruit of the Tree of Knowledge". Modern opinion here and in America inclines to the view that the tree was the apricot, which is a very common tree in Syria and Palestine and the neighbouring countries to the east to this day, and since it evidently does so well there probably has been common for

many centuries, although it is not in Professor Zohary's list of natives. It is a tree which produces a pleasant shade, and its golden fruit hanging amongst the slightly silvery foliage seems to fit well with the text from Proverbs xxv, 11: " a word fitly spoken is like apples of gold in pictures of silver " (A.V.) or " apples of gold in a setting of silver " (R.S.V.). In the Song of Solomon there is the reference to the apple tree among the trees of the wood or forest, but although both Post and Zohary report the apple from the Lebanon and North Syria, it does not do well in the heat of Palestine. The nearest natural habitat of the apple is probably the Caucasus, or perhaps the Amanus mountains and Lake Van area, and the fragrant and juicy applies that we know are a development of the last 150 years or so, the earlier apples being more similar to the sour and dry crab apple.

Since both the writers and the translators of the books of the Bible had no idea, before the time of Linnaeus, of scientific nomenclature for living things, they probably all used names descriptive of the habitat, appearance, use or other attribute of plants, and these may have varied in different localities. It is well known how misleading it can be, even here, when one asks the name of a plant, to be told that is " Queen of the Meadows " or " Eggs and Bacon ". In the same way the Hebrews gave their trees descriptive names—oil tree, or sweet wood, or tree that grows by the water, each of which could have several identities, and probably did so in different conditions or amongst different peoples. But the major obstacle to a final and certain identification of many plants mentioned is the problem of linguistics, and the differences of possible readings of the texts, so it must be borne in mind that some scholars at least would support the identities suggested here, although there are probably as many more who would totally disagree. Of course, only a small selection of the trees of the Bible can be dealt with here, which have been chosen with a view to mentioning a few from various groups of trees producing timber, edible fruits and nuts, or incense and spices.

One of the first trees to spring to mind mentioned in biblical texts is the Cedar of Lebanon. The typical habit of growth of this species is well known, at least in the southern counties of England, where it has been planted in parks and in the gardens of stately homes since its introduction in the 17th century or perhaps even earlier. In its native haunts on the slopes of the Lebanon range near Beirut, where a small number of cedars survive, the trunks of some of the trees have grown to an immense size, perhaps due to the great age of the specimens, or perhaps to optimum conditions for growth which they find there. Since the mountain slopes are thought to have been thickly forested over a large area with these trees and others it is understandable that when the agreement was made between King Solomon and Hiram, King of Tyre, for the supply of timber for the building of the Temple in Jerusalem, Solomon had to send 30,000 Israelites, under the command of 3,300 officers, and assisted by 150,000 heavy labourers—" bearers and

hewers " the Authorized Version calls them—to work with the men of Tyre on the cutting, converting and carrying of these huge baulks of timber. Seven years were spent in building the Temple, and after that a further thirteen years were required to build a cedar-wood palace for Solomon and a house for his wife. He needed good large planks, of a beautiful colour and finish suitable for pillars and wall panelling, and a fragrant timber such as cedar would have been an added beauty. The Phoenicians were famous as workers in wood, and therefore Solomon probably wished to employ them to get the best possible workmanship for the Temple which was to house the Ark of the Lord, but it seems unlikely that he would have gone to the great labour of bringing cedar-wood from the Lebanon Mountains if any suitable timber had been nearer at hand. The point is interesting because it has been suggested that before deforestation by timber-cutting, forest-clearing for cultivation, and over-grazing, the forests of cedar, fir, cypress and other evergreens stretched southward as far as the hills of Judaea. It had been thought probable that the wood from tables found in the tombs at Jericho, of Middle Bronze Age date, would be identified as Cedar of Lebanon, but sections of the timber of one of these tables which is in a very much collapsed and powdery condition, indicate that it is much more probably a Juniper. The timber is undoubtedly from a coniferous tree, and conifers are mainly distinguished in the timber by very minute features, which are extremely difficult to see when the material is in poor condition. The general appearance and arrangement of cells indicates either *Cedrus* or *Juniperus*, with a bias in favour of the latter, and the very small features such as intercellular spaces and type of vessel pitting, so far as they can be seen, indicate the same thing more definitely. Now Professor Zohary considers that there are only two species of *Juniperus* native to the region of Palestine and Transjordan—*J. oxycedrus* which extends no further south than Upper Galilee, and *J. phoenicia*, which occurs in Moab and Edom, where it is probably restricted to an area between 1000 and 1500 metres above sea level. We cannot determine from the wood section what species of Juniper we have in these tomb objects, but it is more likely to have come from the mountains of Moab to Jericho than from Upper Galilee, if one judges by distance. Even so, the timber must have been brought a long way as the 1000 metre contour is somewhere in the region of Amman. A final difficulty is that this table was formed of a single plank, about 30 cms. wide and 4 cms. thick, which would require a larger tree than most specimens of *J. phoenicia* one sees nowadays. But with more trees and a smaller population they were probably much less mutilated than at present.

Juniper is mentioned in the Authorized Version (1 Kings xix, 4). The prophet Elijah was threatened with death by Jezebel and he fled to Beersheba and then a day's journey into the desert and lay down to rest under a juniper bush. This area is not now a habitat of the juniper, but a species of white broom—*Retama raetam*—is very common there and is in fact about the only

plant in the region which produces any shade. It may grow up to 7 or 8 feet tall, but is more usually about 4 or 5 feet and often less. The wood of this plant produces the highest quality of charcoal, hence the reference to coals of juniper in Psalm 120.

A number of different kinds of timber are mentioned in connection with the building of the temple, but English and American translations differ a certain amount in their renderings. The Cedar of Lebanon is fairly clear, and the Authorized, Revised Standard and Moffatt versions all mention cedar-wood in the building of the Temple, both in 1 Kings v, 6, 8, 10, and 2 Chronicles ii, 3, 8, but about the other building timbers supplied by King Hiram there is little agreement amongst translators. The possibilities from the linguistic point of view appear to be cypress, fir and algum, and the first two are also probable for the reason that they are recorded by Post on the mountains of Syria, Lebanon and further north, although the fir is more frequent from Amanus northwards. In passing, it should be mentioned that it is impossible to identify the algum with certainty until its country of origin, Ophir, is identified beyond reasonable doubt. Amongst other possible localities are South-east Arabia, India, parts of Central Africa, or Lebanon, and various suggestions are put forward for the algum according to which geographical location is favoured. The most likely identities are probably *Pterocarpus santalinus* (Red Sandalwood) from India, or *Cupressus sempervirens* from Lebanon. It is impossible to enter here into the discussion as to whether algum is a scribe's error for almug, or how the three year journey from Ezion-geber to fetch the almug can be explained if Lebanon is indeed Ophir. To return to the Cypress, the genus *Cupressus* is also suggested by Moffatt and the Revised Standard Version for the " gopher wood " of Noah's ark. It is stated that the etymology of the word " gopher " suggests a resinous wood, and cypress is very durable timber and *C. sempervirens* would produce large planks suitable for building a ship 450 feet long and 75 feet broad. The suggestion of the Goodspeed version that the gopher was Oleander (*Nerium oleander*) is quite impossible, since this is merely a shrub up to 12 feet tall, which produces no stem that could be converted to timber for structural work. It is far more likely that the oleander was the " rose growing by the brook of the field " mentioned in Ecclesiasticus xxxix, 13. It is a great pity that it is highly unlikely that the remains of the Ark will be found, either on Mt. Ararat or anywhere else, to enable us to section the wood and so provide a definite and permanent answer to this point.

Another tree producing timber is the Shittah tree, producing Shittim wood. This wood is notable from the fact that almost all authorities are in agreement as to the genus of this tree, which is a species of *Acacia*. There are two or three species found in the deserts of Arabia and the Sinai peninsula, and various species also throughout the Negev and round the Dead Sea. These trees are very numerous in a comparatively small area approaching Aqaba. Many of them are obviously old, from about 15 to 30 feet in height.

They have very hard, close-grained timber, very resistant to rot and insect attack, and are still valued for cabinet work and would have produced a beautiful timber for making the Ark of the Covenant (Exodus xxv). It may be worth mentioning is passing, that the Burning Bush which Moses saw near Mt. Sinai, which is a rather similar vegetation zone, may very probably have been *Acacia* also, probably *A. nilotica*, covered as it often is with the flame-like mistletoe, *Loranthus acaciae*.

A number of woody plants which produce edible fruit of various kinds are mentioned in the Bible. The vine is, of course, the most obvious of these, but the plant and its fruit are so well known, and the biblical references to it are so numerous and generally so clear, that it is not worth while considering here, except for two points. One is that the vine is thought to be native only in the area between the Taurus mountains and the Caspian Sea, but it spread over the Middle East as a cultivated plant in very earliest times, being frequently recorded in Egyptian and Assyrian monuments; and the earliest mention of it in the Bible is in Genesis ix, 20: " And Noah began to be an husbandman, and he planted a vineyard ". Secondly, Palestine is famous for producing immense bunches of grapes, and this may explain the fact that when the spies sent by Moses were returning to report on the Promised Land they had to carry between them on a pole the bunch of grapes which was to prove the fruitfulness and richness of Canaan. But the suggestion has also been made that the translation should have been another fruit which grows in really large clusters or bunches, namely bananas. Species of bananas are native in India and Abyssinia, but they are widely cultivated throughout the area and as we have no record of the date of their introduction, perhaps the suggestion is not so extraordinary as it seems.

The sycomore fig (*Ficus sycomorus*), is an evergreen or almost evergreen relation of the common fig. It is commonly referred to in the Authorized Version as the Sycomore, but has nothing to do with the Sycamore of more northern latitudes, which belongs to the genus *Acer*. It grows into a large and spreading tree, being frequently planted along road-sides because of the shade it throws, and produces large quantities of sweet but inferior fruits which form an important item of food for the very poor. This is the significance of the statement of the prophet Amos (Amos vii, 14) when he said, " I was no prophet, neither was I a prophet's son, but I was an herdsman and gatherer of sycomore fruit ", meaning that he was a man of no education or importance, but the poorest of the poor. It produces a very squat trunk, branching fairly low, like most of the genus *Ficus*, so it would have been easy for Zacchaeus, who was a little man, to climb up into a sycomore fig so that he could see Jesus passing through the crowds in Jericho on his way up to Jerusalem. There seem to be no biblical references to the use of this tree for timber, but it was very commonly used in Egypt for the making of mummy-cases and coffins, amongst other things, and there have been several large specimens of *Ficus* charcoals from the Early Bronze Age levels at Jericho,

which do not appear to have come from hearth ashes, but to be the remains of structural timbers.

Belonging to the same family is the Mulberry. The Black Mulberry, *Morus nigra*, a native of Persia, is mentioned in texts of Hammurabi and has been found amongst 7th century levels at Nimrud, and is almost certainly the tree named sycamine in Luke xvii, 6 (A.V. and Moffatt). The White Mulberry is a native of the Far East, where it was jealously protected for centuries because it produces the leaves on which silkworms are fed, and silk does not appear to have been known as far west as Persia until a few centuries before Christ. According to modern opinion Solomon in all his glory knew nothing of silk, and the earliest biblical reference to it is in Ezekiel xvi, 10, of date about 594 B.C. The Mulberry is referred to in 2 Samuel v, 23–24, Authorized Version, but modern translators in the Revised Standard and Moffatt have changed this to Balsam, which is probably the Euphrates Aspen, *Populus euphratica*. The context demands a tree which rustles in a breeze, and therefore a species of poplar is most likely, as it has hard stiff leaves on weak petioles, which would make " a sound of a going " in the tops of the trees. The aspen known in this country, *P. tremula*, is, according to Post, only found in Palestine in cultivation, and is probably native in more northern latitudes.

The Pomegranate, *Punica granatum*, is mentioned frequently in the Old Testament, and used in various forms as a place name, presumably indicating the fact that the trees did well in certain localities. It is probably native throughout western Asia, from India to the Mediterranean, being an introduction to Egypt by the time of the 18th Dynasty, and its generic name implies a Phoenician origin. In any case the tree was cultivated from very early times, which makes it difficult to be certain of its native habitat. Post suggests that it is wild in Gilead, but Zohary does not include it in his list of woody plants of Israel and Jordan. The Children of Israel during their wanderings in the wilderness reproached Moses for having brought them to that evil place where there were no figs, vines or pomegranates, so that these fruits should have been well-known to them in Egypt in the 13th century B.C., and later the Promised Land was described to them as " a land of wheat and barley, of vines and fig trees and pomegranates, of olive oil and honey ". It usually signifies fertile land and prosperity. The fruit of the pomegranate was used as part of the decorative design of the priests' robes when they officiated at the ceremonies connected with the Ark of the Covenant in the wilderness, and in the decoration of Solomon's Temple at Jerusalem. The fruit of the tree was evidently prized at least in parts of Palestine about 1900 or 1800 B.C., since tombs of Middle Bronze Age date have produced shrivelled pomegranates, and also a little carved wooden model of a pomegranate fruit.

There are several kinds of edible nuts mentioned in the Bible in various translations, walnuts, almonds, pistachio nuts and nuts without further description. The walnut, *Juglans regia*, is not mentioned as such in the

Authorized Version, but Moffatt gives it in Song of Solomon vi, 11 as "walnut-bower", instead of "garden of nuts" (A.V.). The almond, *Amygdalus communis*, is probably a native of Persia, but spread westwards very early and was presumably cultivated both for food and for oil. In the Moffatt and Revised Standard Versions the almond replaces the Authorized Version's hazel in the passage describing Jacob's method of breeding numbers of black sheep and spotted goats by showing them peeled sticks of poplar, almond and plane (Genesis xxx, 37), and this occurred at Haran in the upper Euphrates Valley. A later reference to the almond comes in Genesis xliii, 11, when there was a great famine in Palestine, and Jacob sent his sons to buy corn in Egypt. The Authorized Version is: "take of the best fruits of the land in your vessels, and carry down the man a present, a little balm and a little honey, spices and myrrh, nuts and almonds"; and the other two more modern versions are in agreement with the translation "almonds." This sounds as though all these commodities were local produce, and although it is probable that almonds grew round Bethel, since that place is also called Luz in Genesis, and Luz is the Arabic word for almond and also the Hebrew word used in connection with Jacob's peeled sticks, at least some of them were probably imported. But almonds are reported from a number of districts by Zohary at present, including the boundary area of the Mediterranean zone of vegetation, from the mountains and deserts of Judaea. Almonds are rarely found in Egypt now, and only as cultivated specimens, and ancient evidence for the presence of almonds there is very slight, one or two references in Pliny and other classical authors and a few remains of the fruits and part of a walking stick in tombs, none earlier than the 18th Dynasty. Lucas is of the opinion that these fruits were imported, partly at any rate, for the oil that was used in the making of unguents, but this does not help to solve the problem of Aaron's rod. At the time of the Exodus the Israelites had almond branches with them, according to our English translations, either brought from Egypt or found in the desert, because Aaron's rod, which was placed in the Tabernacle with eleven other rods, representing the twelve tribes, budded and blossomed overnight and produced almonds (Numbers xvii, 8). The evidence concerning almonds is largely negative, and they are not found naturally at present in Egypt, Sinai or the Negev, but it is unlikely that the climate has changed appreciably since the Exodus, and we know that a large part of the Israelites' journey was made through the wilderness, desert then as now. Another factor to be remembered is that the story of the Exodus was probably passed from generation to generation by word of mouth for some three or four centuries, and although these verbal traditions are frequently very accurate errors do creep in, especially over small details.

To revert to Jacob's present to Joseph, there are further difficulties over the nuts and pistachio nuts. The Authorized Version gives "nuts", and Moffatt and Revised Standard Versions give "pistachio nuts". The tree

that produces these nuts, *Pistacia vera*, is probably a native of Western Asia and Asia Minor, and according to Post and Zohary is not indigenous in Palestine proper. It is widely cultivated and occurs very commonly round Damascus and Aleppo. It therefore seems likely that the pistachios in Jacob's present were imported into Southern Palestine from further north, and were not the best fruits of the land in the sense of being local produce. There seems to be uncertainty about where Jacob was living at the time, but it was probably somewhere between Mamre and Dothan. Since Jacob was hoping to ingratiate himself and his sons with Pharoah's overseer he would want to send a present of some value, so that delicacies brought from elsewhere would be worth more in his eyes than a local product which was common in normal times.

One further tree of importance as food, or fodder for animals, is the Locust Bean or Carob tree, *Ceratonia siliqua*. Professor Zohary is of the opinion, supported by other authorities, that this tree is native to the coastal and mountainous region of Palestine, in the Mediterranean plant zone, which also extends to isolated areas on the plateau east of the Dead Sea and the Wadi Arabah, and this tree is even common in and around Petra, including some quite large specimens. It is widely grown and the pods are used as food by the poor, also as animal food, and it is almost certainly the source of the ' husks that the swine did eat ' in the parable of the Prodigal Son. It grows into a handsome tree, with very dark green foliage and long brown pods. It has also been suggested that it was the locust bean which John the Baptist ate with wild honey, rather than locust insects. However, commentators do not agree on this point, and the problem is again one of linguistics.

A plant which is only doubtfully referred to in the Bible but is common about the countryside is the caper plant, *Capparis spinosa*, of which the flower buds are pickled and are the capers of commerce. The reference is in Ecclesiastes xii, 5, probably a description of old age, and the word is translated by the Authorized and Revised Standard Versions as " desire ": " And when they shall be afraid of that which is high, and fears shall be in the way, and the almond tree shall flourish, and desire shall fail; because man goeth to his long home, and the mourners go about the streets ". The Revised Version and other translations, among them the Goodspeed and Jastrow versions, give " caper-berry " instead of " desire ", while Moffatt has " spirit ". It is a handsome plant which commonly grows out of walls or crevices in rocks, for which reasons it has sometimes been equated with the " hyssop that springeth out of the wall ", with green or blue-green foliage showing off its large creamy-white flowers with long purple stamens.

The large variety of incense and spices mentioned in the Bible provides another great problem, for several reasons. Many of them are derived from herbaceous rather than woody plants, and so cannot be dealt with here. Many others were not local products but must have been brought in by

traders from other lands. The spice routes and the dates at which such routes began to be used are somewhat imperfectly known, though it is known that trade was carried on between India and the eastern Mediterranean from at least as early as 1500 B.C. Spices would have been brought to Egypt and Palestine through Arabia, probably by the sea route from Ceylon or south India, and either to southern Arabian ports and then overland or up the Red Sea to Ezion-geber or Berenice. It is likely that this route followed the coast for most of the way, crossing the mouth of the Persian Gulf, until about the beginning of the Christian era. From Berenice, or other ports on the Red Sea, the goods must have been carried overland to the Nile, where they were again shipped, or by caravan from Ezion-geber to the towns and coast of Palestine, or by the route east of the Dead Sea through Moab and Gilead. Other routes which probably developed during the last millennium before Christ were land routes that led to Petra, from Gerrha on the west of the Persian Gulf, or across the head of the Gulf from, perhaps, Persepolis and south Persia. The routes to Antioch and Palmyra through Ctesiphon were probably rather later, since we know that Palmyra anyway only developed as a caravan city about the first century.

The Sweet Cinnamon which was to be an ingredient of the anointing oil for use in the Tabernacle in the wilderness (Exodus xxx, 23) would have been the dried bark of a species of cinnamon, *Cinnamomum zeylanicum*. though oil of cinnamon is also produced from the ripe fruits or by distillation of the bark after soaking it in seawater. This tree is native to Ceylon, Malaya and the East Indies. The same recipe included *Cassia*, 500 shekels of it, and this illustrates our second big difficulty in identifying spices and other articles of trade, since ancient peoples were apt to infer that a commodity that reached them through a neighbouring country had its origin in that country. Thus the *Cassia*, which is a native of Ceylon and further east, was identified by Herodotus as Arabian Cassia. The bark of this species, *Cinnamomum cassia*, was probably the spice used. Both these species were known in Egypt by the period of the New Kingdom, that is, from about 1580 onward, and here again the cinnamon was thought to be a product of Punt, presumably because it reached Egypt through that country. The merchants of southern Arabia, who were probably the great middlemen of the spice trade from India, guarded most carefully the secret of the origin of such valuable commodities, and it must have been from one of their tall stories that Herodotus learned of the supposed method of collecting cinnamon. They tempted the great birds, which made their nests of sticks of cinnamon attached to vertical cliffs, to carry large lumps of meat into the nests, which thereupon collapsed under the weight of the meat and fell to the ground, where the sticks could be gathered up.

A third difficulty is that Bible translators have been unable to identify many of the words describing spices and perfumes, and have had to take refuge in such words and phrases as sweet gum or spicery. When Joseph's

brothers decided to get rid of him they sold him to a company of Ishmaelites to sell in Egypt. The Authorized Version says they carried spicery, balm and myrrh; Moffatt gives resin, balsam and fragrant gum, and the Revised Standard version gum, balm and myrrh. The Hebrew word used in this passage is *lōṭ*, translated by the Authorized and Revised Standard Versions as "myrrh", and this is regarded as an error by many authorities, including Goodspeed. One reason is that the context demands that the substance being carried into Egypt must be a product of either Palestine or some area further north or east, and true myrrh is a native of Abyssinia and Somaliland and the only part of Asia where it grows is southern Arabia. It is much more likely that the Ishmaelites were carrying into Egypt the gum produced by some species of *Cistus—C. salvifolius* or *C. villosus* which are native throughout the hills of Palestine and Syria, and the gum of which we know as laudanum. Various species of this shrubby plant are well known in English gardens, as shrubs up to about 6 ft. tall with dark green or grey-green leaves and masses of short-lived flowers, generally white or shades of pink. The gum is secreted by glandular hairs on the twigs and leaves, mainly in the heat of the day, and used to be collected by herdsmen by combing the drops of hardened gum out of the beards of goats which had been browsing on the foliage. A more advanced method of collection was by beating the bushes with rough leather thongs to which the drops adhered. Since earliest times it has been valued in perfumery for fixing more evanescent scents. It is likely that it was also laudanum that was included in Jacob's present to Joseph in Egypt since the same Hebrew word is used in that passage, rather than myrrh, as given in the Authorized and Revised Standard Versions. Moffatt gives "fragrant gum" in both these contexts. True myrrh is a resin exuded from branches and stems of species of *Commiphora* (also called *Balsamodendron*) which is a small, dense, thorny shrub found in rocky and desert places. It was probably unknown in Palestine in the time of Jacob, but would have been known in Egypt before the Exodus, probably imported from East Africa, since 500 shekels of it were included in the recipe for the anointing oil for the Tabernacle mentioned in Exodus xxx, together with cinnamon and cassia as already mentioned. It is thought to have been the gum from *Commiphora myrrha* which was brought by one of the Three wise Men as an offering to the infant Jesus in Bethlehem. The brief mention of these personages in the Gospel of St. Matthew, only tells us that they came from the east, and since one brought with him myrrh, produced by *Commiphora myrrha*, a native of southern Arabia, it is interesting to note that frankincense which was the gift brought by another, is the gum of a species of *Boswellia*, and *Boswellia carterii* is native to southern Arabia also. Besides, from classical times frankincense was known as an import from Arabia, from Saba mainly, and Van Beek reports that inscriptions found by Frank Albright refer to the production of Frankincense near Khor Rori, in Dhofar province. *Boswellia thurifera* is native in south India and produces a high quality of frankincense

which may have been included among the commodities exported to the south Arabian ports along the old spice routes, so the Wise Man could have brought either the local product or the imported one.

According to experts there are two trees or shrubs which produced gums or resins which pass under the name of Balm, and one which produced an oily substance of the same name, but there is little agreement amongst them as to which is the correct one for any particular reference. Some contexts demand a fragrant substance, and some a substance with healing properties. There are three references to balm by the Prophet Jeremiah, which imply that the substance was a healing one: " Is there no balm in Gilead; is there no physician there? " (Jeremiah viii, 22); " Babylon is suddenly fallen and destroyed: howl for her; take balm for her pain, if so she may be healed " (Jeremiah li, 8), or the Moffatt version of Jeremiah xlvi, 11: " You may get balsam from Gilead, my lady Egypt, but all your salves are vain, for you there is no healing ". The most common identity for this plant is *Balanites aegyptiaca*, from the fruits of which any oily substance is produced by boiling, which Hasselquist reported as an excellent remedy for stomach troubles, and as a dressing on wounds. It has a pleasant, though faint, smell, but these verses do not demand a material that was strongly scented. The shrub is very common round Jericho and the Dead Sea, and also in Palestine and Egypt. It grows about 12 ft. high, and is very thorny.

The other tree of which the products may have been what is known as balm was another species of *Commiphora—C. opobalsamum*, which is indigenous to most of the countries round the Mediterranean and is common in Palestine. In the book of Ezekiel is a passage describing the commerce of Tyre, which enumerates the commodities supplied by Judah, the land of Israel, including balm or balsam. This could have been from either of these trees, the Pistacia or Mastic being the local product, and the gum from *Commiphora opobalsamum* would have been carried from Saba or the Yemen through Palestine by caravans to the port of Tyre, although a few verses further on there is a reference to the quantities of spices, jewels and gold brought thither by the merchants of Saba and Raamah. On the other hand, as already suggested, there is no reason to suppose that goods necessarily had their origin in the countries which traded in them, since earlier in the same chapter there is a verse (xxvii, 6): " with oaks from Bashan for your oars, with ivory inlaid in larch from Cyprus for your deck ". If larch, as given here by Moffatt, is correct then it was certainly not a product of Cyprus, since larch is a native of northern Europe and requires a much colder climate than any in the Mediterranean basin. To revert once again to Jacob's present to Joseph, the balm which was included could have been the healing balm from *Balanites aegyptiaca*, or more probably the mastic from *Pistacia lentiscus*. This gum has a variety of uses, as a medicament, an aromatic, a flavouring, and the poorer grades as a varnish. Either of these would have been locally produced, and although it is probable that some of the items in Jacob's

present were imports, most authorities consider that the southern Arabian trade in spices was not yet in operation in Jacob's day, and therefore he must have sent a locally produced balm.

The selection of trees here is inevitably arbitrary. The references to trees in the Bible are far too numerous to be dealt with exhaustively here, and in many contexts the plant referred to is impossible to identify with certainty. The continuing work of translation will no doubt clarify many points regarding the names given to certain trees. Much further work is also needed in the determination of wood, charcoal and other plant remains from as many excavated sites as possible to build up a fuller picture of the vegetation of a given area at particular periods, and to indicate contacts by trade.

EXCAVATIONS IN THE KIDRON VALLEY

By Howard E. Stutchbury

Of the complex of Jewish tombs and funerary monuments at the foot of the Mount of Olives, facing the East wall of the Haram (pl. XI, fig. 1), the best known, the most pretentious and the only one not completely rock-cut is the so-called " Pillar of Absalom ", which is closely associated with a range of loculi traditionally ascribed to Jehoshaphat. Somewhat to the South of these is a second group of loculi, not so regularly set out, and furnished with a distyle-in-antis Doric portico cut into the cliff-face above the track to Silwan. The architrave of the portico entablature bears the only ancient inscription to be found upon any of these monuments, and this identifies the second group (known by tradition as the " Tomb of St. James ") as the family tomb of the priestly house of Hezir.

By way of a passage cut through the rock from the South side of the portico, the Benei-Hezir tomb is connected with the open space in which stands the monolithic sepulchral monument known as the " Tomb of Zechariah " (pl. XI, fig. 2). The mention at the beginning of the Benei-Hezir inscription of " the tomb and nephesh " has led to the general assumption that there is more than the physical connection of the rock-cut passage between the Benei-Hezir and Zechariah monuments, and that the free-standing structure is the nephesh (or sepulchral monument) belonging to the tomb which is marked by the Doric portico façade.

Much of the evidence which might serve to confirm or disprove this view has, probably from an early date, been concealed below later earth burials in an increasing accumulation of soil and débris carried by surface water from the higher ground so as to cover the lower parts of the Zechariah monument on the East side nearly to the level of the capitals of the order with which it is adorned, and on the West side to a level well above the bases (*v.* pl. XI, fig. 1). Until quite recently, the pillar of Absalom was similarly concealed, to such an extent that in 1851 de Saulcy was disappointed in not being able to enter the tomb of Jehoshaphat[1], the entrance having been blocked and only the apex of the pediment revealing its presence. The more credible of his reasons for this is that the Jewish passer-by was

[1] De Saulcy, *Narrative of a journey round the Dead Sea* (de Warren edn., 1854), ii, p. 232. See also N. Avigad, *Ancient Monuments in the Kidron Valley*, Jerusalem (Israel), 1954, figs. 49 and 50, and N. Slousch, " Excavations around the Monument of Absalom ", in *Jewish Palestine Exploration Soc.*, I, 1925, pp. 2 ff.

accustomed to throwing stones at Absalom's pillar as a mark of disrespect. Certainly the carved detail of its façades is much less well preserved than the corresponding work in the Zechariah monument.

The excavation of the soil on the West side of the " Tomb of Zechariah " was begun early in January, 1960, and it was cleared at one point down to bedrock level during that month. Work was resumed in March, and the monument was, as nearly as possible, completely cleared at the end of April. The primary aim of this undertaking was the corroboration of certain topographical references occurring in the Copper Scroll from Qumrân[1] and the work was generally supervised by Dr. Auni Beg Dajani, Director of the Department of Antiquities of the Hashemite Kingdom of Jordan, and organized and directed by his local Inspector, Mr. S. Maddah, and by Mr. J. M. Allegro.

It was anticipated, as a secondary concern, that clear evidence would be revealed, either of a direct connection between this monument and the Benei-Hezir tomb, as is perhaps suggested by the inscription, or of an original intention that the Zechariah monument itself should serve as a nephesh for a tomb within the monolith (as in the case of Absalom), or cut into the cliff face on the East side (as in the case of Jehoshaphat).

The architectural form and detail of both monuments have, in the past, been very fully analysed and considered in relation to the epigraphic and historical evidence in order to date them and to divine their designers' intentions. To the Abbé Chaine " ' le tombeau de Zacharie ' constituait . . . une irritante énigme, dont l'archéologie devait poursuivre la solution "[2]. Père Vincent gives a reasoned account of the architectural characteristics of both monuments and of the Hezir genealogy to support the conclusion that " ' La néphèš ' à envisager ici ne saurait dès lors être autre chose que le monument dit ' tombeau de Zacharie ' "; " pyramide et tombeau sont ordonnés l'un à l'autre, et leur origine est notablement antérieure aux jours d'Hérode . . . "; la " date doit être abordée d'ensemble pour le groupe complet . . . la première moitié du IIIe siècle avant notre ère "[3].

The more recent and more exhaustive analysis by N. Avigad leads him to the view that the Benei-Hezir nephesh is represented by the flat façade cut in the cliff immediately adjacent to the North anta of the Doric portico (clearly to be seen in pl. XI, fig. 2), and that when complete, it was surmounted with a pyramid[4]; that the tombs associated with Zechariah

[1] J. M. Allegro, *The Treasure of the Copper Scroll*, New York, 1960, p. 94.

[2] L. H. Vincent, *Bibliothèque de la Faculté Catholique de Théologie de Lyon*, V, 1950 (J. Chaine memorial volume), p. 385.

[3] *Ibid.*, pp. 389, 386, 390, 397.

[4] Avigad, *op. cit.*, fig. 42, p. 77. This is supported by L. F. Cassas, *Voyage Pittoresque de la Syrie* (1799), in which the wings at each side of the portico are shown as towers with a crowning cornice (*v.* Anderson & Spiers, *Architecture of Ancient Rome*, Ashby edn., 1927, p. 129).

are possibly hidden in the rock to the East[1]; that the Benei-Hezir tombs represent the earliest Hellenistic rock-cut work in the Jerusalem necropolis, and belong to the early or middle second century B.C.; and that the Zechariah monument, on the basis of the architectural evidence alone, by comparison primarily with Nabataean examples and with late Hellenism in Asia Minor, belongs to the latter half of the first century B.C., and is probably early Herodian work[2]. Other opinions have been widely divergent and highly categorical. De Saulcy[3] mentions a suggestion that the Absalom monument was begun in Davidic times, and a popular current view that it belonged to the time of Constantine. Dr. Macalister felt, of Zechariah (which was known to the Bordeaux Pilgrim as the " Tomb of Isaiah "), that " there can hardly fail to be a tomb-chamber inside this monument "[4].

A very tentative shallow excavation close to the West, South and North faces was made in 1873 and reported by Clermont-Ganneau[5] as revealing " the beginning of a stylobate ", and " bases of rough columns ". This was confirmed in the present excavation of the West façade which first revealed the uppermost of four steps forming a crepidoma, upon which the bases of the Ionic engaged half and quarter columns and the corner pilasters were superimposed. The bases might have been expected, on the West façade at least, to have been complete, as are the capitals, the carving of which is remarkably well-preserved; but either they were completed and later defaced, or the carving of them was never finished, as is the case with details of the order on the three other faces of the monument. It is possible, however, to deduce from the now rough state of the Northern half-column on the West side (*v.* pl. XII, fig. 3) that a base of Attic or Ionian form is more likely to have been intended (or to have existed) than the quasi-Roman Doric cyma recta and torus which has survived in Absalom. The stylobate is, too, in a rough state, and particularly at the North-East corner it is clear that the cutting was never finished; and except on the South and West sides the fourth step does not appear at all, though it is clear that the cutting was intended to provide a platform below the fourth step, for a substantial trench has been taken out at the foot of the North cliff face, leaving the threshold of the entrance to the passage communicating with the Benei-Hezir tombs 2m. above the platform level[6] (section X and pl. XII, fig. 4).

[1] Avigad, *op. cit.*, p. 140.

[2] *Ibid.*, pp. 58, 129. I am indebted to Rabbi P. R. Weis for the translation of the relevant passages in Avigad's Hebrew text.

[3] *Op. cit.*, pp. 244, 231.

[4] R. A. S. Macalister, *A Century of Excavation in Palestine*, 1925, p. 73.

[5] C. Clermont-Ganneau, *Archaeological Researches in Palestine*, i (trans. Stewart, 1899), p. 304.

[6] With this, the findings of N. Slousch (1925) agree (quoted by Avigad, *op. cit.*, pp. 49 and 50), except that he appears to assume that from a point 2 m. below the 60 cm. step " a wide space leads across to Zechariah ", and later he adds, quite incomprehensibly, " the steps continue across to Zechariah " (*v. Proc. Jewish Pal. Expl. Soc.*, I, 1925, pp. 37, 40).

On all but the West side of the monument, between monolith and cliff-face, there are substantial remains of built structures clearly intended as tomb-chambers, probably, from their size, identifiable as family tombs. As is undoubtedly the case in other (rock-cut) tombs in the vicinity, these chambers were repeatedly re-used and in each of them all or part of the structure has ultimately collapsed, probably as a result of the fall of rock from the slopes above; on the North side (tomb VII) the remains comprise no more than an irregularly shaped floor of opus incertum built up above the rock-cut platform to a level which renders it readily accessible from the South entrance to Benei-Hezir (pl. XIII, fig. 5). On the East and South sides the structural remains are more complete, and include the surviving parts of three separately identifiable rubble-built vaults, two of which are demi-berceaux, springing from the steps of the Zechariah crepidoma and bearing at the crown against the cliff faces respectively on the South and East sides. The first built (tomb VIII) was that on the South (pl. XIII, fig. 6), for there is no groin at its junction with the adjoining vault on the East (tomb IX) which bears directly on it; and the third vault, the last built (tomb X) was probably a complete barrel, bearing on the wall (of which several courses and a threshold with jamb stones remain) flush with the North façade of the monument and on the vault of tomb IX (several courses above the springing at this point remain).

The intrados of the vault in both cases is plastered, and in the case of tomb VIII there survive traces of plaster on the rock-cut cliff face, and on the floor, which at least in parts is again finished in opus incertum, apparently with the same plaster as a matrix. Above the vault to tomb VIII there is a series of regularly spaced mortices cut into the cliff face (of which two were visible before excavation), apparently to form bearings for the rafters of a pentice over the vault.

Each of these built tombs (nos. VII–X) encloses one or two of the steps of the crepidoma; in tomb VIII, in fact, the fourth step is revealed running the whole length of the chamber, and is plastered for the most of its length; it is possible that the steps within the tombs functioned as arcosolia, and in the lower courses of the vault of tomb IX are three niches which may well have served as ossuary chambers.

Descending from the intended general level of the platform on the West side were discovered two opposing flights of rock-hewn steps, fairly regularly set out and providing access to an entrance centrally below the monolith which revealed a small rock-cut chamber (pl. XIV, fig. 7), quite informal in plan, but provided at its inner end with a roughly apsidal niche, and with the whole ceiling quite accurately cut plane and level. The only details of any account are a series of shallow depressions cut in the upper part of the walls of the chamber and two pairs of accurately cut square holes, one in each of the jambs of the opening (sections A and B).

On both sides of the entrance opening, the lower riser of the steps is

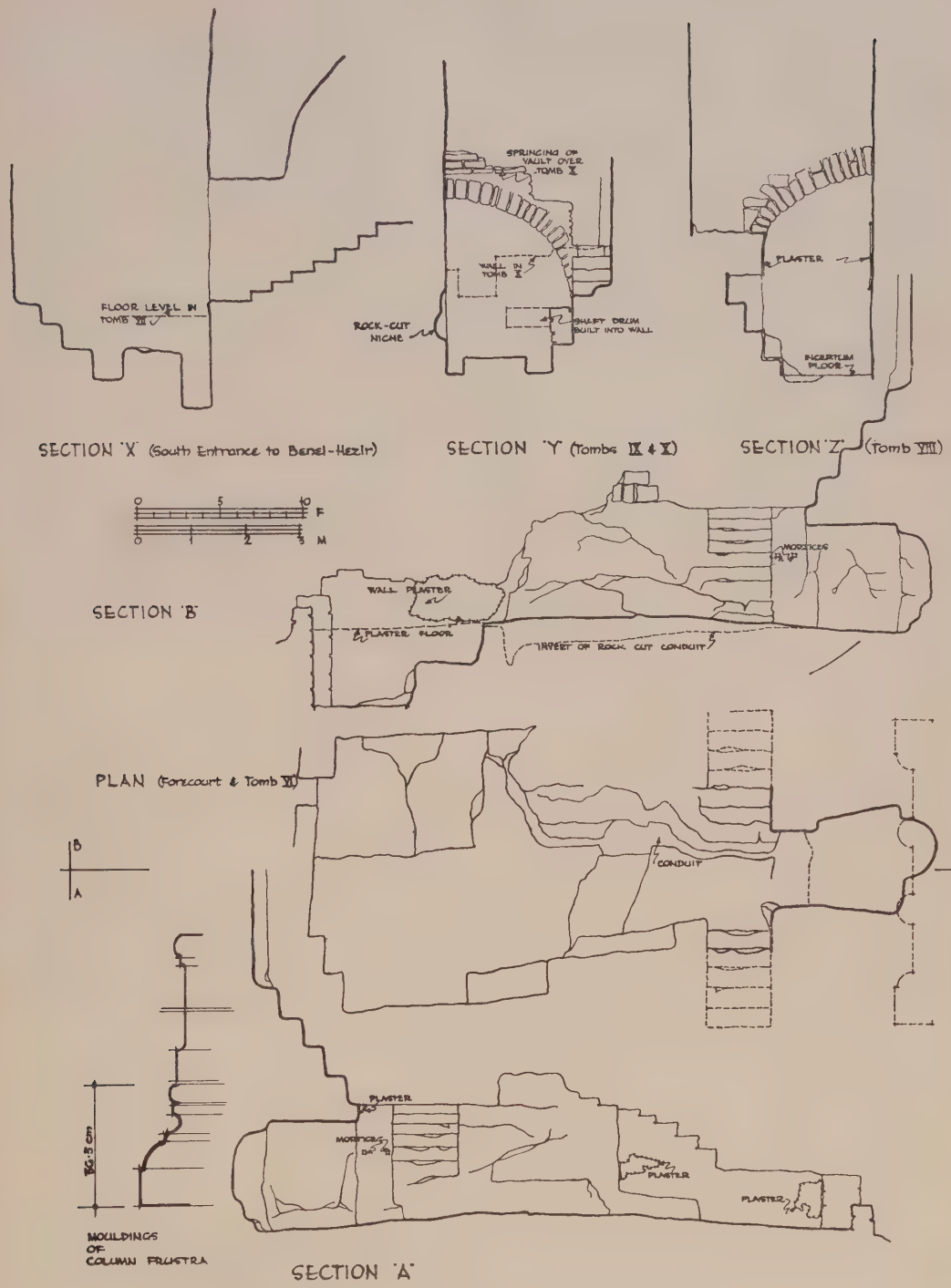

FLOOR LEVEL IN TOMB VII
SPRINGING OF VAULT OVER TOMB X
WALL IN TOMB X
ROCK-CUT NICHE
SHAFT DRUM BUILT INTO WALL
PLASTER
INCERTUM FLOOR
SECTION 'X' (South Entrance to Beisel-Hezir)
SECTION 'Y' (Tombs IX & X)
SECTION 'Z' (Tomb VIII)
0 5 10 F
0 1 2 3 M
SECTION 'B'
WALL PLASTER
PLASTER FLOOR
MORTICES
INVERT OF ROCK CUT CONDUIT
PLAN (Forecourt & Tomb VII)
B
A
CONDUIT
PLASTER
MORTICES
PLASTER
PLASTER
PLASTER
MOULDINGS OF COLUMN FRUSTRA
SECTION 'A'

Fig. A.

appreciably above the threshold, though on the North side, lower steps, crudely cut, and encroaching upon the width of the entrance opening, have been provided (pl. XIV, fig. 7). Further excavation down to bedrock levels toward the West revealed a forecourt with rock-benches, and built walls of rough masonry plastered, similar in plan, though not so formally devised, to those found to be usually provided in the Sanhedria tombs[1]. From the entrance to the lower chamber (numbered VI, though possibly not originally a tomb) to a point within the forecourt, is cut, quite roughly, a conduit which was shown, by careful levelling, to fall away from the monument (section B). During the period of the excavation, a certain amount of subsoil water was seen to have issued from a fault in the rock within the chamber, and to provide an indication of the source of water to be conducted across the forecourt. A not dissimilar device occurs in the vestibule of tomb X at Sanhedria[2].

During the course of the excavation, a number of column frustra were discovered, of fairly consistent sectional diameter, representing the remains of at least four column shafts, together with one stone carved as a column base of decadent Attic form with socle, and another crudely carved in the form of a volute. The fragments taken to be the lower ends of shafts carried an apophyge and fillet about 10 cm. broad, and those taken as upper ends an astragal of about 7 cm. average sectional diameter. The number and dimensions of these architectural remains are given in the schedule and drawings and their locations in the general plan.

Schedule of Architectural Fragments

	Description	*Mean diameter*	*Length*
1.	Lower end of column shaft ..	·36 m.	1·1 m.
2.	do. ..	·54 m.	1·66 m.
3.	do. ..	·51 m.	1·15 m.
4.	Upper do. ..	·46 m.	1·15 m.
5.	Lower do. ..	·56 m.	·74 m.
6.	Upper do. ..	·54 m.	·87 m.
7.	do. do. ..	·46 m.	·74 m.
8.	Drum	·51 m.	1·0 m.
9.	Upper end of column shaft ..	·46 m.	·31 m.
10.	Base and socle	·59 m. (over upper torus)	
11.	Volute		
12.	Drum	·36 m.	·39 m.
13.	Drum	c. ·48 m.	·79 m.

[1] J. Jotham-Rothschild, "The Tombs of Sanhedria", *PEQ*, 1952, pp. 23 ff., and pl. VI.

[2] J. Jotham-Rothschild, "Tombs of Sanhedria, II", *PEQ*, 1954, pp. 16 f.

Nos. 8 and 9 are clearly two parts of the same column. It was not possible accurately to measure the diameter of No. 13 because it has been built into a wall.

The previously suspected but unconfirmed presence of a chamber within the Zechariah monument would appear at first sight to dissociate the monolith from the Benei-Hezir group and its inscription. But, in fact, none of the chambers revealed by this excavation can be directly related to the original purpose of the monument. Clearly, all the built work is of later date, and at least the vault of tomb X is likely to be considerably later; it bears upon a wall into which has been built a column drum almost certainly of the same provenance as the column base found in the forecourt (nos. 10 and 13 in the Schedule above). The ready conclusion that these columns were at some time associated with the monument itself is not borne out either by the form of the later work surrounding it (particularly the unfinished nature of the upper platform) or by the positions of the column fragments, some of which are of considerable weight, at the upper levels. They must have been thrown down the hillside. That which was left, lying on a not inconsiderable depth of soil, on the steps within the South entrance to the Benei-Hezir, may have fallen into its upper entrance and rolled across the Doric vestibule. De Saulcy provides a clue to the truth of this situation in his description of some " very recent [1851] diggings " which " brought to light . . . the remains of a religious building, . . . probably a church constructed by order of the Empress Helena or of Constantine. Fragments of cornices, capitals and shafts . . . are carried down with much labour from the spot where they have been dug up towards the bottom of the Vale of Jehoshaphat (i.e. Kidron Valley), where they are sold to the Jews, to be cut up and carved into funeral-stones, to be added to the innumerable quantity of the same kind, strewed over the side of the valley from the tomb of Absalom to the village of Siloam "[1]. Apparently, at the original destruction of the building, similar though less ordered efforts had the same effect. The mouldings of the base (given in the sections), are certainly consistent with early Christian details of decadent classical form; the broad fillet at the lower end of the shaft, the coarse profile of the upper torus and the use of the flat ovolo in the place of the lower one have their obvious exact counterpart in Justinian's work in Bethlehem[2].

De Saulcy also noticed " especially in the inner carvings of the columns and pilasters, that the whole of the mausoleum (*sic*), or at any rate the lower compartment, has been completely covered with an exterior coating of very smooth red cement which has been preserved only in such parts as were not exposed to the injuries of men and of the weather "[3]. There is

[1] De Saulcy, *op. cit.*, ii, pp. 215 f.

[2] R. W. Hamilton, *The Church of the Nativity*, 1947, p. 51.

[3] De Saulcy, *op. cit.*, ii, p. 241.

little evidence of this now. The only plaster applied to the monument itself, now apparent, is at the top edge of the gorge cornice at the East side (probably repairs to damage caused by falling debris), and a shred or two around the opening to the lower chamber (section A). It is possible that the details of, for instance, the bases, were executed in plaster over coarsely cut rock in accordance with ancient precedent[1], or even that the later structures abutting the monument were built as, or became, Christian churches or anchorites' cells, as was the case with the hypogaea in Jehoshaphat and Benei-Hezir, where much of the rock-cut face was plastered and painted[2].

The persistent recurrence here of the puzzling device of finishing a flight of rock-cut steps considerably above its lower landing is not easily explained. It occurs in the upper entrance to Benei-Hezir, at the South entrance to the passage leading to the Doric vestibule (section X) and on both sides to the entrance of the lower chamber in Zechariah (sections A & B). In the first case, it may well have resulted from an error in the setting out, as is suggested by Avigad[3]. In the second case it militates against the connection suggested by the inscription between Benei-Hezir and Zechariah, and since the adjacent work is unfinished it is very likely to be the later. Similarly, the irregular form of the rock-cutting for the lower chamber, and of the lower steps on the North side of the entrance to it, suggest that the size of the chamber was increased at a time later than the original work and that its floor, the water channel, and the floor of the forecourt, if that were then in existence, were reduced to a lower level. This may have been induced by the necessity for a greater flow of water, which was probably stored in a cistern as at Sanhedria and in the forecourt of the Tomb of Queen Helena of Adiabene.

The lower chamber (tomb VI) in its present condition is barely large enough for use as a tomb-chamber, and it is not of the usual kokh form. The presence of water and of a conduit to lead it away also suggests that it was originally intended otherwise than as a tomb. This lends importance to a depression cut into the cliff face on the East side, within tomb IX (section Y and pl. XIV, fig. 8), which has the appearance of a beginning of the cutting of an entrance to either a vestibule chamber or a loculus tomb, which, like the details of the monument, and its platform and substructure, was never finished.

The closest parallel with the general form of the monument is the probably Theban type of tomb which is represented by those of Apis discovered at Sakkarah, consisting of a square-built chapel standing upon a podium, accessible by means of a flight of steps, adorned with corner pilasters,

[1] E.g. Temples at Selinus, of Poseidon at Paestum, of Aphaia at Aegina, and Zeus at Olympia.

[2] Avigad, *op. cit.*, p. 83.

[3] *Ibid.*, p. 49.

Fig. 1. Tombs and funerary monuments at foot of Mount of Olives.

Fig. 2. Tomb of Zechariah.

Fig. 3. Tomb of Zechariah: note rough state of northern half-column on west side.

Fig. 4. Tomb of Zechariah: entrance to passage communicating with Benei Hezir tombs.

Fig. 5. Remains of Tomb VII, on north side of Tomb of Zechariah.

Fig. 6. Remains of Tomb VIII, on south side of Tomb of Zechariah.

Fig. 7. Entrance to rock-cut chamber beneath Tomb of Zechariah.

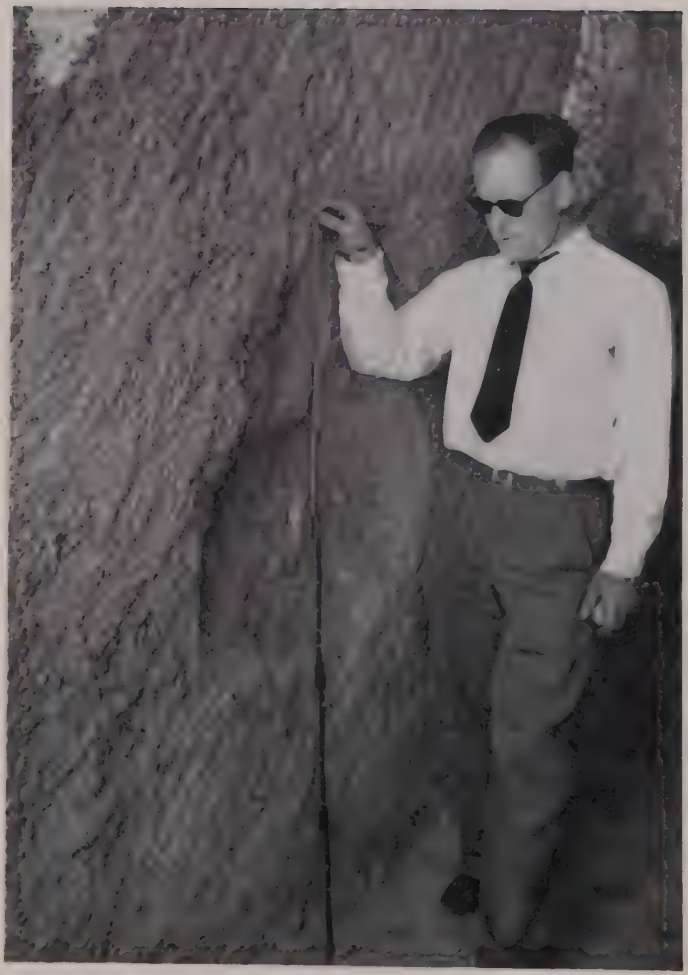


Fig. 8. Depression in cliff face within Tomb IX.

Fig. 9. Tomb of Zechariah: vestigial flutes below capitals.

Fig. 10. Rock-cut opening in hillside south of Tomb of Zechariah.

Fig. 11. The same, after excavation.

with a crowning gorge cornice and surmounted by a pyramid, and with a rock cut tomb-chamber below served by another flight of steps or a ramp[1].

Very probably deriving from this or a similar source, through Ptolemaic or other post-Alexandrian influence, are the Tunisian example at Dougga[2], with chambers in both superstructure and podium, and the Nabataean 'Sahrij' or block monuments in Petra, which have in most cases lost much of their detail through weathering, though enough remains in some cases to indicate the presence of pilasters, engaged columns, gorge cornice, and surmounting stepped pyramid[3], and which have sometimes two rock-cut chambers above platform level.

The general form and the Egyptian detail may well, in the case of Zechariah, be inherited from local (Silwani) and Petraean examples, but of greater value in placing the monument in its proper physical and chronological context are the classical details represented entirely by the capitals of the columns and corner pilasters. These are ably described, drawn and analysed by Avigad[4], who finds ample evidence in comparative material to support his conclusions as to the date and purpose of the monument. Still, however, without completely convincing explanation, are the quite surprisingly well-preserved vestigial flutes just below the column capitals (pl. XV, fig. 9). Fluted shafts are very rare in rock-cut work, even in Doric orders of Hellenic pedigree[5]; the beginning here of an attempt at their execution is of special interest. Avigad's suggestion is that the carver followed the technique of freemasonry in first setting out his flutes and fillets at the top of the shaft and never completed them because his experience had shown him only incomplete work elsewhere. It would seem now the more likely that we have here simply further evidence of the unfinished nature of the monument, which is the more regrettable when its completion would have provided a rare example of rock-cut fluted shafts.

Blocked flutes in the lower third of their height are not unknown in Hellenistic work. Examples from the early third and late second centuries are provided by the Shatby tomb and in the Pompeian forum[6], and more nearly similar vestigial flutes appear in the external wall of the Palace of

[1] G. Perrot and C. Chipiez, *History of Art in Ancient Egypt* (Armstrong edn., 1883), i., p. 295, and fig. 190.

[2] G. Perrot and Chipiez, *History of Art in Antiquity*, iii, fig. 262. B. F. Fletcher, *Comparative Architecture*, 16th edn., fig. 185., R.

[3] A. B. W. Kennedy, *Petra*, 1925, p. 41, figs. 69, 70.

[4] Avigad, *op. cit.* pp. 79–85, figs. 44–47.

[5] See Perrot and Chipiez, *History of Art in Antiquity, Phrygia, etc.*, 1892, p. 134, *re* the Gherdak Kaiasi with references to Benei-Hezir and Absalom.

[6] See Breccia, *La Necropole di Sciatbi*, Cairo, 1912, pls. II and III; Mau and Kelsey: *Pompeii*, New York, 1899, fig. 14. Both examples are quoted in Simpson: *Hist. Arch. Devt.* i (Plommer edn.), p. 241.

Ptolemais in Cyrenaica, in Ionic pilasters below a triglyph frieze[1]. Here also occurs, as in Zechariah, another feature of importance, not previously sufficiently emphasized, in the straight parallel canalis of the cushions of the capitals, and the disappearance of the echinus below the bolster, which is characteristic of work of late date in the Hellenistic era, and owes its origin probably to Hermogenean temple architecture in Asia Minor[1]. While no critical date can be attached to the achievement of this form in the Ionic capital, in a work of this kind and on this site, it is very unlikely to have occurred at so early a date as to allow the close identification of the Zechariah monument with the supposed date of the Hezir inscription.

During the first phase of the excavations, in January, 1960, attention was particularly directed to a rock-cut opening in the hillside immediately to the South of the Zechariah monument. Discernible above the level of the soil which had all but filled the opening was no more than the cut soffit of the opening and the rough caps of two columns (pl. XI, fig. 1, pl. XV, fig. 10). The jambs of the opening were squared and bore the marks of tooling (pl. XV, fig. 11, and sections C and D), and the work was clearly unfinished.

Excavation revealed a roughly cut distyle-in-antis frontispiece of the same general form as that of Benei-Hezir, the only finished work being that which was identifiable before excavation as worked to a regular face. The platform was reached at a higher level than was to be expected, suggesting either that the cutting was proceeding downward from the soffit, when the work was abandoned (for the rock overburden is quite shallow) or that the openings in the finished work were to have very much more generous proportions than is admissible in a Classical monument, even when rock-cut.

The depth of the cutting of the rock is rather more in the Southern opening than in either of the other two, and part of the floor adjacent to the column on that side has been used for earth burials, and has been plastered. The fore-part of the platform has been quarried away apparently to provide space for two built tomb chambers in front of the main opening of which the lower (tomb III) retains the haunches only of its rough barrel vault, the crown being supported upon an extant corbel stone, and the upper (tomb II) is extensively plastered internally and has in one corner a springing (for, presumably, a similar vault), modelled in the plaster.

What appears possibly to be the inner end of a kokh (tomb IV) occurs in the quarried face behind the substantial wall which encloses the built tombs. A complete kokh (tomb V), bearing a modern inscription over the entry was uncovered close to the Southern jamb of the main opening.

In the centre of the floor of tomb III was a large vessel standing upright, associated animal bones and charred wood suggesting domestic use. Adjacent, on the North side, to tomb II, were found one of the column frustra already described (pl. XV, fig. 11) and a large spheroid stone, its entire surface

[1] Simpson, *op. cit.*, i., p. 242 and fig. 76.

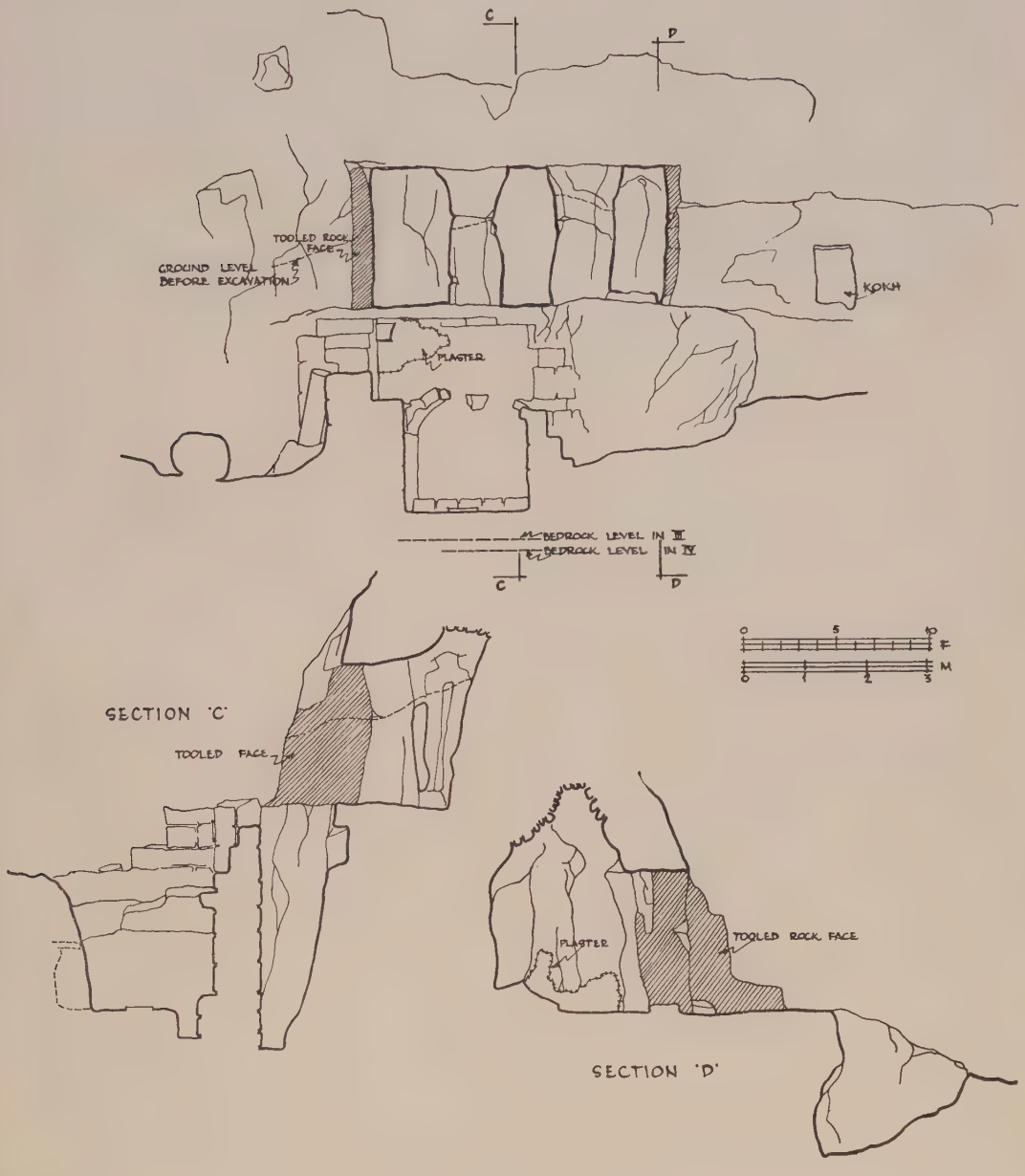

C
D
TOOLED ROCK FACE
GROUND LEVEL BEFORE EXCAVATION
KOKH
PLASTER
BEDROCK LEVEL IN III
BEDROCK LEVEL IN IV
C
D
0 5 10 F
0 1 2 3 M
SECTION 'C'
TOOLED FACE
PLASTER
TOOLED ROCK FACE
SECTION 'D'

Fig. B.

tooled, of a kind also to be seen among the remains of the Antonia below the Convent of the Sisters of Zion, and probably identifiable as a missile for use in a siege engine.

Immediately above the space within the Southern opening the rock has at some time collapsed and the roof was left void, though it is now filled again with rubble and soil carried by surface water from the slopes above. In addition to this, a marked rock fault occurs in both the roughly-cut column (pl. XV, fig. 11).

Either of these may have been sufficient to have deterred the prospective occupiers from the completion of the work; and even in its obviously advanced state, it is possible that the severe rock fault clearly to be seen in the North face of the Zechariah, if it were at the time in evidence, similarly discouraged

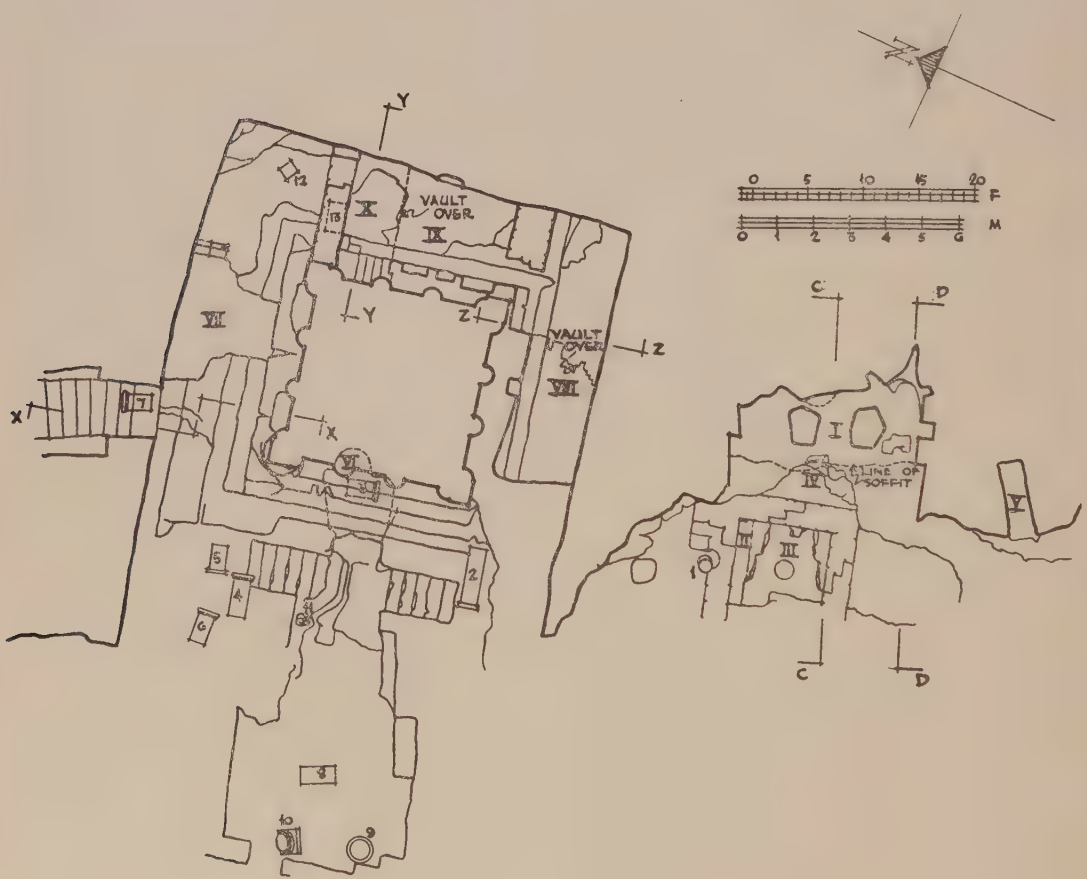


Fig. C.

completion of the work there. But any or all of these faults may well have been caused by subsoil movement during the ensuing centuries.

It seems most likely that the completion of both the monolith and the new tomb was prevented by the one historical circumstance, though no other connection between the two is to be supposed, in that case, than that they were being worked at the same time. The latest possible event which might provide the cause of the abandonment is probably the destruction of Jerusalem in A.D. 70, but this would seem to be at least a century too late a date to conform with the architectural evidence for the chronological position of the " Tomb of Zechariah "[1].

[1] The photographs in figs. 1–3 and 5–8 are by Mr. J. M. Allegro; those in figs. 4, 9, 10 and 11, and the drawings, are by the Author.

THE "TANNERY" OF 'AIN FESHKHA

By J. B. Poole and R. Reed

It is generally agreed that the Dead Sea scrolls were owned by the community which inhabited Khirbet Qumran and that the scroll caves were not *genizoth*, as has been claimed by some scholars.[1] Hence it is reasonable to assume that animal skins were prepared locally for use as writing materials during the span of about one hundred and eighty years covered by the community occupation.

One preliminary approach to the identification of any particular site as being the place where skins were processed for use as scrolls is to consider the availability of the raw materials which would be necessary for this purpose. It will be shown in another paper that, apart from the skins themselves, these materials probably comprised common salt, an organic unhairing system based on flour, urine, excrement or vegetable material (such as fresh leaves or fruits), vegetable tannins and a reasonable supply of water. The need for an ample supply of water would effectively exclude Khirbet Abu Tabbak[2] in the Buqei'a as a possible site, leaving Khirbet Qumran and 'Ain Feshkha as the more immediate alternatives. A stored, cistern supply of water was available at Khirbet Qumran, though it may be doubted whether the demands of a community estimated at two hundred in number would permit much of the limited and seasonal supply to be used in the processing of skins. Qumran has been shown to possess two industrial quarters, respectively to the west and to the south-east of the square block which marks the oldest community level.[3] The fittings of the rooms in these two quarters indicate a wide range of activities and support the idea of the self-contained nature of the community, but these activities are still largely unknown and are likely to remain so for lack of further distinguishing evidence. *Locus* 52 has been identified as a laundry and *locus* 34 as a dyehouse, on the basis of a number of pits. *Loci* 115 and 116 possess plastered floors, which suggest that some wet work may have been carried out there.[4] However, no conclusive identification of a tannery has yet been made, nor have any deposits of vegetable matter been discovered. This is hardly surprising, since the Zadokite Document contains strong injunctions against the contamination of objects by excrement (which was frequently used in preparing skins for tannage) and against the contamination of objects by the mere proximity of a dead body;[5] the

[1] Especially H. E. Del Medico, *The Riddle of the Scrolls*, London, 1958.

[2] W. R. Farmer, *Theologische Zeitschrift*, **12** (1956), pp. 56–58.

[3] See maps in Revue Biblique, **63** (1956), opp. p. 576, to which *locus* numbers refer.

[4] *Ibid.*, p. 541.

[5] xii, 15–18.

Mishnah requires the siting of tanneries fifty cubits away from towns.[1] Thus one would not expect to find tannery operations being carried out in the heart of the community buildings of a hyperorthodox society. On the other hand, whilst orthodox opinion considered the tanner's work despicable,[2] that of the scribe, which included the final preparation of the skin as a writing material, was considered honourable. Thus it is possible that although the pre-tannage processes common both to leather and to parchment, and tannage itself, were not performed at Qumran, the final treatment of the scroll writing material was carried out there. The plaster tables may be evidence of this: these each have a raised edge and bowl-like depression. It has been suggested that these tables were either scribes' desks or that the depressions served to hold water with which the scribe ritually washed before writing the tetragrammaton.[3] Another explanation is that the depressions held a tannin infusion with which the parchment was dressed,[4] since the raised edges indicate that they were intended to retain some liquid within the confines of the table tops.[5] Metzger[6] however, in a recent article, while not doubting that the tables formed part of the scriptorium furniture, maintains that they were benches on which the scribes sat whilst supporting the scroll or codex on their knees.

Thus, although a final treatment to the scroll materials may have been given at Qumran, the initial processes were most probably carried out elsewhere and hence the oasis at Feshkha must be considered as a first possibility. That this is a likely site is clear after the most cursory inspection; it is situated well away from Qumran and possesses a permanent and abundant supply of water. Here de Vaux, early in 1958, discovered an intricate installation of connected pits and basins which he has stated may be the community tannery (*see* fig. 1). Four main basins are involved and clearly the way in which they received water by a system of channels had been designed with great care. This installation has been fully described by de Vaux and he has advanced the following scheme for its operation.[7] (Throughout his original *locus* numbers will be used.) Skins were soaked in *locus* 23 and treated with lime in *locus* 24 (where a white, chalky deposit, overlaying the plaster sides of the pit, was found), after which they may have been unhaired on the stone " beams " (*see* fig. 2), of which three are known, one lying in *locus* 24 to the north of *locus* 26. The use to which *locus* 25 was put

[1] *Baba Bathra* 2: 9.

[2] Babylonian Talmud, Tractate *Qiddushin*, pp. 82a–82b.

[3] C. T. Fritsch, *The Qumran Community* (New York, 1956), p. 5.

[4] Suggested by a reading of Maimonides' *Mishneh Torah:* Laws concerning Phylacteries, the *Mezuzah* and the Scroll of the Law, IX, 15 and confirmed by unpublished work from these laboratories.

[5] J. A. Fitzmyer, personal communication.

[6] B. M. Metzger, quoted in *P.E.Q.* Jan.-June, 1960, p. 6.

[7] R. de Vaux, *Revue Biblique*, **66** (1959), pp. 230–237 and Plates II, VIII, IXb and X.

is by no means obvious. In the carefully paved floor of *locus* 25 is a small, square-cut pit lined with plaster into which leads a well-constructed drain from the lower part of the retaining wall of *locus* 24. *Loci* 26 and 27 may have been used for tanning and would certainly be ideal for such a purpose. The skins could have been spread layerwise in *locus* 26 with tannin between them, and the weir which connected with the main water inlet to the installation may have been used to top-up the infusion.

It is certainly most reasonable to identify the installation as a tannery for its whole construction suggests its use for some industrial purpose. Moreover, 'Ain Feshkha would seem to be the most desirable site for a tannery and nothing the archaeologists have yet found looks so suggestive. Any final identification, however, must be supported by such means as debris typical of tannery sites and by a self-consistent allocation of the standard operations of the skin processing amongst the various pits, which has yet to be done.

De Vaux's suggested reconstruction certainly provides an acceptable explanation for the large stone beams, which he considers to have been used for unhairing the skins which were limed in *locus* 24. Again, the extensive areas of paved and cobbled ground bear out the evident fact that wet work of some description was practised. Whilst the stone beams could have been used for unhairing skins, it should be pointed out that unhairing can be achieved by many means other than liming. The latter process was almost certainly not a part of Jewish skin technology at the time of the Qumran community. A water soaking was possibly used, by which unhairing was promoted by enzymes of bacterial origin, whilst the addition of urine or animal excrement would also aid in the development of such enzymes.[1] Alternatively, vegetable materials could have been used, such as mulberry leaves, bryony or flour.[2] These materials, especially when fresh, could all bring about unhairing by producing acid solutions containing enzymes which can attack the epidermal/dermal junction and so effect hair loosening.[3] The first two could, in addition to unhairing a skin, bring about its tannage at the same time. Flour is particularly effective in unhairing skins and preparing them for tannage: not only is the hair loosened but the gases generated around the skins " raise " them and leave their constituent collagen fibres in a very clean condition and therefore suitable for taking forward into tannage.[3] Flour, however, has no tanning action.[4]

Since the belief that skins were limed at 'Ain Feshkha seems untenable, it becomes harder to assign functions to *loci* 25 and 27. Thus it cannot be assumed that *locus* 25 is a reservoir for old and mellow lime liquors drained from *locus* 24. The fact that *loci* 25 and 27 are so outwardly similar and yet

[1] S. Krauss, *Talmudische Archäologie* (Leipzig, 1911), vol. II, p. 260.

[2] *Ibid*, p. 261.

[3] D. Burton, R. Reed and F. O. Flint, *J. Soc. Leather Trades Chemists*, **37** (1953), pp. 82–87.

[4] Cf. Krauss, *loc. cit.*

Fig. 1. The 'Ain Feshkha installation showing *loci* 24, 25 and 27

Fig. 2. The 'Ain Feshkha installation showing two of the three stone "beams".

so carefully separated is one of the more puzzling features of the installation. *Locus* 26 could have served for unhairing and tanning processes (carried out simultaneously), as de Vaux has also suggested, provided that some means to combat evaporation was available. Perhaps the elaborately constructed channels around *locus* 26 and its weir, were designed for this very reason. Superficially the installation at 'Ain Feshkha bears some resemblance to a primitive Arab tannery at Ouezzan in Morocco[1]. A photograph published by Gansser shows rectangular pits, closely arranged much as *loci* 25 and 27 are at 'Ain Feshkha but whereas all the pits at Ouezzan served the purpose of liming skins, *loci* 25 and 27 probably served different ends.

Pere de Vaux kindly supplied us with a number of samples taken from several parts of the installation in the hope that their examination would establish the installation's function. This examination was carried out in two parts:—

I. The attempt was made to identify distinguishing trace elements both in the installation residues and in some fragments of scrolls from Cave 4 at Qumran[2].

II. The 'Ain Feshkha residues were examined for tanning agents.[3]

I. Since the scroll fragments had been in fairly intimate contact with the stone comprising Cave 4, it is clear that any trace element detected in both the stone and the fragments could not be used in pin-pointing the place of manufacture of the scrolls. The Judaean hills, in which all the manuscript caves are situated, consist of Cenomanian limestone, generally capped by a stratum of flintrock. The limestone is light in colour, soft and porous in texture and locally characterized by a wealth of gypsum, phosphates and bitumen[4]. This statement is supported by the analysis of the deliquescent material adhering to the linen found in Cave 1; this showed the presence in quantity of calcium, magnesium, sodium and potassium, a trace of iron, considerable amounts of chloride, sulphate in fair amount and a trace of phosphate[5]. It may not be correct to say[5] that these materials are " such as would be derived from the Dead Sea (water) " which in Terreil's analyses[6] contained no phosphate but rather that the salts were deposited from evaporating surface water which, in its upward passage, had leached these materials from the limestone.

[1] H. Gansser, " The Early History of Tanning," *Ciba Review*, **81** (Basle, 1938), p. 2950.

[2] We gratefully acknowledge the gift of these fragments by the Department of Antiquities, The Hashemite Kingdom of Jordan.

[3] This was legitimate since amongst the Cave 4 Fragments in our possession it was possible to recognize both leathers *and* parchments.

[4] C. C. McCown, *Journal of Geography*, **23** (1924), p. 333.

[5] G. O. Searle, *Discoveries in the Judaean Desert*, I: Qumran Cave 1, edited by D. Barthelemy and J. T. Milik (Oxford, 1955), p. 18, note.

[6] Article " The Dead Sea," *Encyclopaedia Britannica*, 1949 edition.

A 3 to 4 gm. portion of Cave 4 stone was analysed using the methods of classical chemical qualitative analysis. The same metals were found as had been detected in the Cave 1 linen, viz., calcium, magnesium, sodium, potassium and iron. Silicate was also found in the stone but in this form it would not have been expected in the deliquescent material deposited on the linen, because of its low solubility in water.

A portion of a scroll fragment was ashed, the residue dissolved in dilute hydrochloric acid and the solution examined by a variety of spot tests, *i.e.*, by the use of reagents giving definite colour reactions with individual metals.[1] In this experiment, even fewer metals were detected, viz.: sodium, potassium and, doubtfully, calcium and iron.

As an alternative approach, the stone and the scroll ashes were analysed by paper chromatography.[2] Two solvent systems were used:—ethyl alcohol with 10 per cent. by volume of 5N hydrochloric acid[3] and collidine which had previously been shaken with an equal volume of 0·4N nitric acid.[4] The anions present in an acid extract of Cave 4 stone were converted to the chloride form by means of ion-exchange resins since certain ions, such as phosphate, influence the normal movement of metal ions on paper.[5] After running the chromatograms, they were developed and examined by the methods given by Block *et al.*[4] and Pollard, McOmie and Stevens.[5]

The chromatographic analysis of Cave 4 stone disclosed the presence of no metals other than those already found. The two scroll ashes, however, in addition to the metals indicated by the two spot tests, contained magnesium and chromium. Of these two metals, chromium is the only one by which the scroll materials could be distinguished from their erstwhile environment, since the cave stone contains appreciable amounts of magnesium. Chromium however, is commonly present in most modern chemical laboratories and its detection in the scroll ashes is probably a result of laboratory contamination. Hence it would hardly serve as a basis for a theory of the place of manufacture of the scroll material.

Analysis using arc-emission spectroscopy was also carried out.[6] For examination, solid materials were untreated, water samples were evaporated to dryness on the steam bath and scroll fragments were carefully ashed. All were then individually ground to a fine powder with an equal quantity of

[1] See for example *The B.D.H. Spot-Test Outfit Handbook*, British Drug Houses, Poole, Dorset.

[2] R. J. Block, L. Le Strange and G. Zweig, *Paper Chromatography* (New York, 1952).

[3] F. H. Pollard, J. F. W. McOmie and H. M. Stevens, *School Science Review*, **34** (1952), pp. 21–40.

[4] F. H. Pollard, J. F. W. McOmie and I. I. M. Elbeith, *J. Chem. Soc.*, 1951, pp. 466–474.

[5] *Ion Exchange Resins*, British Drug Houses Ltd., Poole, Dorset.

[6] These analyses were carried out at the Home Office Forensic Science Laboratory (North Eastern Area), Harrogate, by kind permission of the Director and with the generous assistance of Dr. Alan Curry.

pure graphite and, after moistening with concentrated nitric acid, evaporated to dryness. After placing in the carbon arc of an Hilger Medium Quartz spectrograph, they were " shot " in a d.c. arc of 110 volts at 5 to 6 amps. The emission spectra were recorded on Ilford B 10 plates, and the spectra interpreted by the use of standard tables. In all, 32 samples were examined, comprising 14 ashed scroll fragments (including two leathers, possibly the remains of phylactery cases or labelling tags for the scrolls), one Wadi Murabba'at fragment, two modern parchments, one modern sole leather, Cave 4 stone, seven deposits from the 'Ain Feshkha installation (channel 1, *loci* 24 and 25, upper and lower samples from *loci* 26 and 27) and water residues from the Dead Sea, 'Ain Feshkha, Qumran *loci* 52 and 56,[1] 'Ain es-Sultan (Elisha's spring, Jericho) and the Pool of Siloam, Jerusalem.

Many more elements were shown to be present by this method than had been disclosed by the previous ones. Thus in addition to the metals already established, chromium, strontium, aluminium, nickel, silver, copper, titanium, manganese, lead and barium were quite generally present. Of these, however, titanium must be excluded from any discussion of the scrolls' origins, since it is usually a contaminant of the carbon electrodes; nickel and chromium also, because they are typical laboratory impurities; lead and barium, since it is believed that these metals contaminated the samples during preparation.

A rough subjective rating was given to the intensity of the spectral lines of each element in order that the results should have some quantitative significance. (*See* accompanying table.) The numbers 1 to 6 represent the increasing relative intensities of the spectral lines. The Table clearly shows that there are no great differences between the scroll ashes and the Cave 4 stone. Also, there are few significant differences between the Cave 4 material and the Feshkha deposits. The presence of large amounts of calcium in *loci* 24, 25, 26 (top) and 27 (bottom) may be due to broken plaster from the pit linings since, as has been stated above, there is no evidence that unhairing of skins by the use of lime was practised by the Jews at this period. Indeed, the spectroscopic data provide some slight confirmation of this point, since none of the scroll fragments or the samples of Qumran leather contains as much calcium as the modern parchments. When making parchment today, skins are unhaired using the liming process and are then washed quickly in water before drying under tension on a wooden frame. Hence the resulting parchment would be expected to retain appreciable amounts of calcium. In most modern sole-leather tannages, rather more de-liming is carried out before the hides are taken into the tan pits; thus a sample of modern sole-leather would usually contain less calcium than a modern parchment. If lime *was* used to unhair the scroll skins, one would need to assume that de-liming was carried out fairly thoroughly. Again this is unlikely since traditionally de-liming in vegetable tannage has always been of a superficial character,

[1] These were collected in February, 1958.

whilst de-liming as a definite stage in the making of leather arose mainly in the light leather field, particularly with the advent of chrome tannage some eighty years ago. Significantly, however, sodium is generally present in the scroll ashes in considerable amounts and this would strongly support the view that solutions of common salt were used in the preparation of the scroll skins as, indeed, Maimonides states in his description of the preparation of skins for scroll purposes.[1]

The same few elements, viz., calcium, magnesium, sodium, iron and, to a lesser extent, potassium, tend to be the most common in all the materials examined. In the water residues they are virtually the only metals present and hence the freedom of the 'Ain Feshkha water from the rarer elements effectively rules out any attempt to link this supply with the site of preparation of the scroll skins. The varying amounts of the elements in the scroll materials, even allowing for the subjective assessments of the spectral intensities, are most striking. If we assume a common origin and mode of preparation, together with storage under similar conditions, a greater uniformity might have been expected. It may well be that the scroll materials were processed at quite different places and that later they were brought together at Qumran. We concluded, however, that any attempt to discover these places of manufacture, on the basis of characteristic trace elements, would not be fruitful.

II. In this section we deal with the examination of the deposits from 'Ain Feshkha installation to determine if any traces of tannins were present. Because of their complex character, the detection of tannins by chemical tests is by no means straightforward. Even to define them is a difficult matter but they may be regarded as a class of substances found in many plants which have the common property of converting skin into leather. All the natural tannins are *aromatic* compounds, derived either from the dihydric phenol *catechol* or from the trihydric phenol *pyrogallol*. Consequently tannins are usually divided into " catechol " tannins, giving green-blacks with iron salts and " pyrogallol " tannins giving blue-blacks. The two classes show marked differences in tanning properties, some of the " pyrogallol " tannins (the ellagi-tannins), giving rise to deposits of ellagic acid in the leather, whilst the " catechol " class deposit dark-brown substances named phlobaphenes. As far as one can judge, most of the vegetable tannins used by the earliest producers of leather were of the pyrogallol class. Members of this class are often called *hydrolysable* tannins because on hydrolysis with acids or with alkalis, they give rise to derivatives of gallic acid. On the other hand, the catechol tannins resist such hydrolysis and usually the action of acid is to render them even more condensed or complex and hence more insoluble.

Even so, tannins are fairly stable substances and it is this property of

[1] *Mishneh Torah:* Laws concerning Phylacteries, the *Mezuzah* and the Scroll of the Law, I, 6.

stability which makes them most useful for converting the easily putrescible skin of an animal into the far more durable commodity—leather.

Many tests are known by which tannins can be recognized but they all depend on putting some of the tannin into solution.[1] When plant materials are freshly extracted this is quite a simple matter. Again, with leathers of no great age, some of the tannin is always less firmly bound than the fixed tannin, hence it can often be extracted with water, borate solutions or mixed solvents such as acetone/water. In such cases, the colour reaction of the extract with iron salts is a firm indication that tannin is present; alternatively, the solution can be examined spectrophotometrically when the presence of sharp absorption peak at a wavelength of 2800 A. enables a tannin to be detected. In many cases the tannins can be separated by chromatographic means and the various components identified by their characteristic positions on the chromatogram, whilst if we are dealing with a hydrolysable tannin, it can be hydrolysed and the products identified by specific colour tests.

When however we have to deal with the detection of trace amounts of tannin in material which has been lying in damp earth over long periods, the problem is more complicated. If we first consider the catechol class of tannins these would be likely to persist over such periods, though the loosely bound tannin would be leached out, leaving the highly insoluble fixed tannins. With time, the latter would tend to become more insoluble and hence, because they cannot be brought into solution, tests for their detection might prove negative. On the other hand, over long periods the hydrolysable tannins would probably be broken down by bacterial enzyme action to water soluble materials, leaving little or no trace of the original tannin. If, however, the hydrolysable tannin were an ellagi-tannin, one would expect traces of ellagic acid to persist, even in damp ground, since it is both insoluble in water and somewhat inert chemically. Thus every step should be taken to ensure that ellagic acid, if present, is brought into solution before making the tests for tannins.

In the present work, several extracts of the samples of the 'Ain Feshkha deposits were made using different solvent systems, viz., cold water, hot water, warm aqueous acetone, concentrated hydrochloric acid followed by water, concentrated hydrochloric acid followed by pyridine, and warm pyridine. In every case, however, the extracts gave no indication of tannin by the standard tests (*vide supra*). Thus taking these findings in conjunction with the other evidence which gave no indication of animal hairs, organic material, etc., it seems reasonably certain that the 'Ain Feshkha installation was *not* used for the preparation of skins and hence scroll materials.

Thus the problem of what it *was* used for still remains. In this connection the recent paper of Zeuner[2] is of direct interest. In analysing the Feshkha

[1] H. Gnamm, *Die Gerbstoffe und Gerbmittel* (Stuttgart, 1949).

[2] F. E. Zeuner, *P.E.Q.*, Jan.-June, 1960, p. 27.

deposits he found that there is very little organic matter anywhere in the installation, although, significantly, there is more in the water channel system itself than in the pits. This finding suggests that the organic matter was brought by the water from outside the installation. Again, though his tests for tannins are not conclusive, he found no such materials in either the channels or in the pits. Furthermore, the low phosphate content in these locations would imply that no animal skins were processed at 'Ain Feshkha. Microscopic examination of the deposits showed no traces of organic matter such as hair, plant remains or diatomaceous bodies[1] from which he concludes that tanning operations were not carried out at 'Ain Feshkha and that the water in the pits was not static. The latter fact however, is fairly evident from the whole design of the installation and from the carefully constructed weir over which water was induced to flow via a main channel from *locus* 23 into *locus* 26. Had the installation been used for tanning, some traces of organic material would almost certainly have remained, even if we take into account the possibility that 'Ain Feshkha might have been submerged under water for a long period.[2] It is not immediately obvious why Zeuner excludes tannery operations on the grounds that the pits would be much too large for this purpose. In our view they would serve admirably; the water supply is directly available while the pits cover a convenient range of size and are of a suitable depth. Zeuner suggests that the system was used for the breeding and the storage of fish. Within our present knowledge this is a reasonable suggestion, though it should be mentioned that Zeuner makes no mention of the presence of the three large stone beams (*vide supra*). De Vaux considers that these were used for unhairing skins, and in fact similar beams have long been used for this purpose, especially in fellmongery establishments where sheepskins, in the course of making parchments, are de-woolled. On the other hand, if they served as cutting-up tables for fish, they could conform to Zeuner's suggestion.

Thus whatever the true function of the installation, it seems fairly certain that animal skins were *not* processed there. Hence 'Ain Feshkha was probably not the place of manufacture of the scroll materials. We have considered that the installation was used for the retting of flax, for linen was definitely used by the Qumran community. Indeed, the pits shown some resemblance to retting pits in a Beni-Hassan tomb painting (*see* drawing published by Wilkinson[3]). But here again this hypothesis seems rather unlikely since no plant remains have yet been identified.

We are indebted to the Department of Scientific and Industrial Research for a Special Research Grant; to Père Roland de Vaux, O.P., for kindly

[1] This finding is confirmed by our unpublished work.

[2] W. R. Farmer, *Theologische Zeitschrift*, **11** (1955), pp. 295–308.

[3] J. G. Wilkinson, *The Manners and Customs of the Ancient Egyptians* (London, 1898), vol. II, p. 173.

proving the samples from 'Ain Feshkha and allowing the use of two photographs; to Emeritus Professor Donald Burton, M.B.E., Head of the Department of Leather Industries, the University of Leeds, during the time in which this work was carried out, for his continued interest, and to our colleagues, Dr. H. E. Nursten and Mr. J. Scholtz, for their help in discussing certain points.

TABLE OF SPECTRAL INTENSITIES

Sample	No.	Na	K	Mg	Ca	Fe	Sr	Al	Ag	Cu	Mn
Scroll fragment	1	4	3	3	3	2	1	2	1	2	1
	2	4	2	4	5	5	3	3	2	2	2
	3	3	2	4	4	3	3	3	1	2	2
	4	5	2	3	3	1	1	2	1	2	1
	5	4	2	5	4	4	2	3	1	2	2
	6	5	5	4	3	3	2	3	–	2	1
	7	5	–	5	5	5	3	3	2	2	3
	8	5	2	3	3	–	2	2	1	2	–
	9	6	3	4	4	4	3	3	1	2	1
	10	4	2	5	4	3	2	3	1	2	2
	11	6	3	4	4	3	2	3	2	2	1
	12	6	3	4	4	3	2	3	2	2	2
Qumran leather	1	5	3	4	5	4	3	3	2	2	2
	2	6	3	4	4	4	3	3	1	2	1
Wadi Murabba'at (leather?)	1	5	4	3	3	1	2	3	1	1	–
Modern parchment	1	4	–	4	6	2	3	3	2	2	1
	2	4	–	4	6	3	3	3	2	2	2
Modern sole leather	1	4	–	4	3	1	3	3	2	2	1
Cave 4 stone	1	3	2	4	4	4	2	3	1	2	2
Feshkha Channel	1	4	2	3	2	5	–	2	1	2	2
loc.	24	3	1	5	6	3	3	3	–	2	2
loc.	25	4	3	6	6	3	3	3	–	2	2
bottom loc.	26	3	3	3	4	3	2	2	1	2	2
top loc.	26	4	3	4	6	4	3	3	1	2	2
bottom loc.	27	4	2	5	6	4	3	3	1	2	2
top loc.	27	4	2	4	5	5	3	3	2	2	2
Dead Sea Water		6	5	5	3	–	2	–	–	–	–
'Ain Feshkha Water		6	5	3	3	–	2	–	–	–	–
Qumran Water loc.	52	6	5	4	5	–	3	–	1	1	–
loc.	56	6	6	3	3	–	2	–	–	–	–
'Ain es-Sultan Water		4	–	5	6	1	3	2	2	2	–
Siloam Water		6	5	4	5	–	3	–	1	1	–

Note.—Si and P have been omitted, together with the other elements mentioned in the text.

PETRA—THE ARCHED GATE, 1959-60

By G. R. H. Wright

In conjunction with the excavations of the British School in Petra during the seasons 1959 and 1960, opportunity was taken to make some architectural studies[1]. One of the monuments involved was the Arched Gate (Bachmann's Strassentor[2]). The work of the School under the direction of Mr. P. J. Parr, in effecting the clearance of the northern half of the Gate and the adjacent part of the street[3] conclusively revealed the plan (see fig. 1), cast considerable light on the vexed question of its relation to the adjacent structures and brought into evidence many new architectural fragments. This inevitably has rendered invalid much of Bachmann's treatment[4] (the only previous detailed one—but worked up without the aid of excavation) and the salient novelties are here recorded. At the same time it must be mentioned that the work of investigation is still proceeding in conjunction with the restoration of the monument which the Department of Antiquities has instituted under the direction of the author, and the clearance of the southern half doubtless will reveal further details so that it is not yet possible to be entirely definitive.

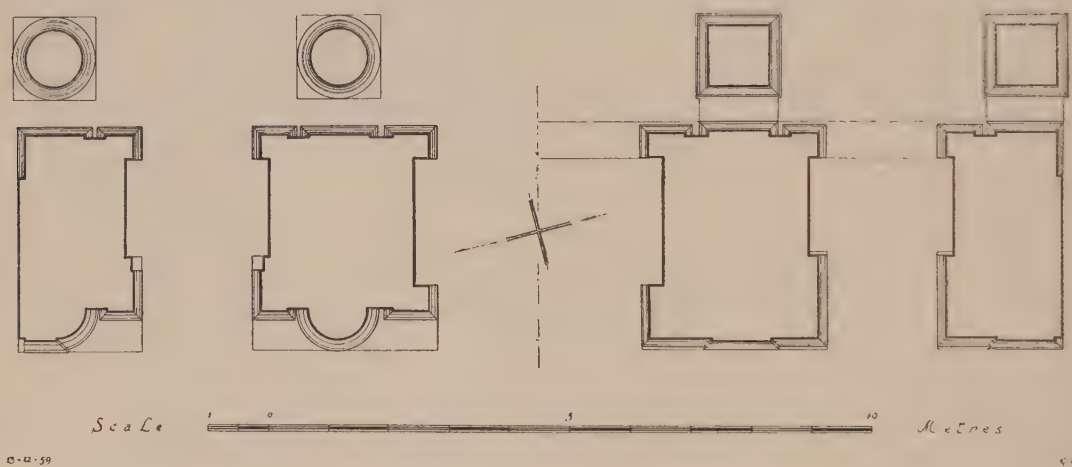


Fig. 1. Plan.

[1] These studies were made possible initially by the generosity of the Hon. Sir Steven Runciman; *cf.* the survey of the Qasr el-Bint in *P.E.Q.*, January-June, 1961.

[2] See W. Bachmann *et alii*, *Petra* (Wissenschaftliche Veröffentlichungen des Deutsch-Türkischen Denkmalschutz - Kommandos, Heft 3) Berlin, 1921: "Das Strassentor," p. 56.

[3] See P. J. Parr, *P.E.Q.*, July-December, 1960, pp. 124-135.

[4] See Bachmann, *loc. cit.*, *passim.*

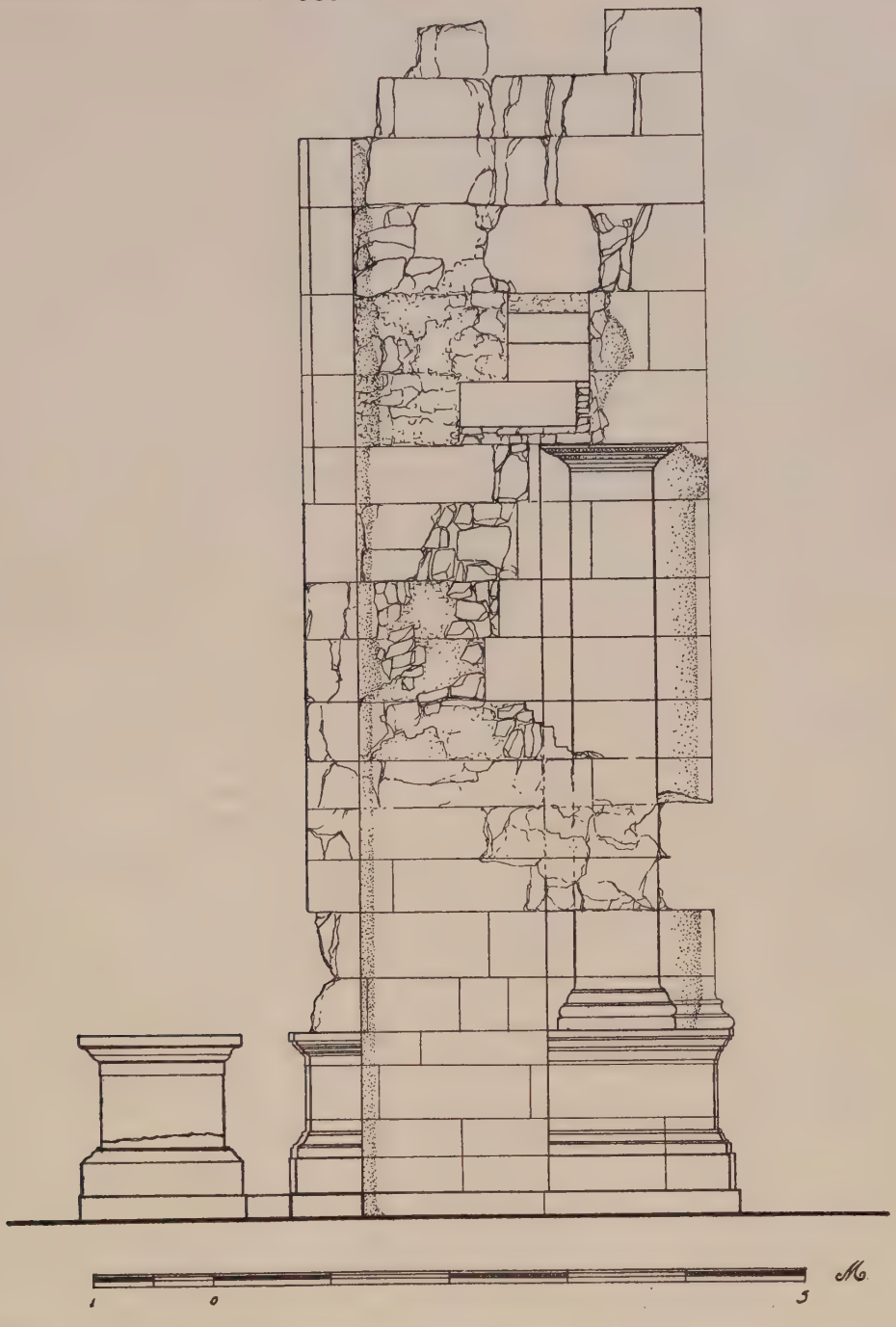


Fig. 2. Side elevation.

The most striking of the new discoveries was that the east face of the Gate was designed with free standing columns[1] (see fig. 2). This has had the effect of both literally and figuratively reversing much of Bachmann's presentation. He wished to show the west face (of which he gives a praiseworthy reconstructed elevation—see pl. XVIIIA and fig. 3) as the principal face, and labours the point that the monument leads from the Qasr el-Bint onto the colonnaded " Market " Street, rather than *vice versa*. This is doubtless involved with a desire to show the arch (and the neighbouring buildings on the same orientation—e.g. the Qasr el-Bint) as pre-Roman. General observations, both architectural and archaeological, defeat this; and the free standing columns are conclusive, for an arch with this feature before Trajan is unthinkable or revolutionary.[2]

It is now certain that the arch forms a functional gateway to the Sanctuary area to the west,[3] for the fittings to hang the doors are now abundantly clear.[4] This bears out to the full Domascewski's initial conjecture[5] and disposes of Bachmann's remark: " Torflügel dürften überhaupt nicht vorhanden gewesen sein " (p. 50). It now seems certain that the Gate was set into a pre-existing street complex, thus again vindicating Domascewski's judgment.[6] The archaeological details of this, however, are intricate and will need much careful attention.[7] Since in every way the Arched Gate and the Qasr el-Bint are related, it is obvious that they were planned contemporaneously, and the complex is most likely a civic embellishment of the prosperous Antonine and Severan days.

This might seem to sit uncomfortably with much of Bachmann's *Kunstgeschichte*, but in point of fact does not. His reconstructed elevation is

[1] Reported by P. J. Parr, *loc. cit.*, p. 131; see plates XIXB, XXA.

[2] *Cf.* D. S. Robertson, *A Handbook of Greek and Roman Architecture*, Cambridge, 1954, p. 289: " Fully detached columns are first found under Hadrian." Similarly H. Plommer, *Ancient Classical Architecture*, London, 1956, p. 314, note 1: " The earliest surviving arch which shows this feature [*i.e.* free standing columns] in Rome itself, is of Septimius Severus. But perhaps Trajan's arch there had made the innovation. The so-called arch of Trajan at Timgad seems to be later than was generally supposed." (It is not earlier than the Antonine period.) Free standing columns are shown, however, on coins of Trajan which represent a triumphal arch erected after the successful termination of the Dacian War. The legend *forum Traiani* shows that the arch stood in the forum of Trajan or perhaps formed a monumental entrance thereto. See H. Stuart Jones, *Companion to Roman History* (Oxford, 1912), p. 114, n. 3. Mention is also made here of the monumental gateway of Asseria in Dalmatia, the date of which falls within the closing years of Trajan's reign. There, as in Petra, the columns on the outer face are said to be free standing, those on the inner face engaged.

[3] *Cf.* the Sanctuary of Ba'al Shamin at Sī' (see Butler, *loc. cit. infra*).

[4] See P. J. Parr, *loc. cit.*, p. 132.

[5] See R. E. Brünnow and A. V. Domascewski, *Die Provincia Arabia*, Strassburg 1909, Vol. 1, p. 178: " Den Eingang in den Tempelbezirk bildete ein Dreifaches Tor."

[6] See *ibid.*, p. 178.

[7] Mr. P. J. Parr has specifically directed excavations to this end.

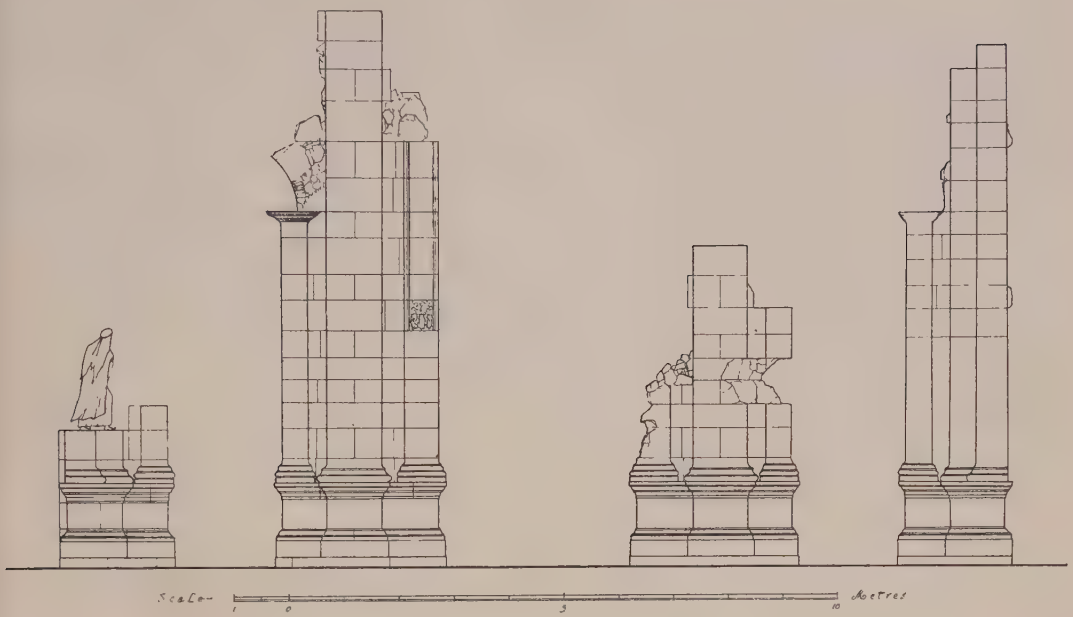


Fig. 3. West elevation.

very sound[1] and his analysis of it, illuminating. Furthermore, his observation on the interesting assimilation of fine Hellenistic detailing together with Nabataean motifs in the same monument stands. Indeed it is intensified by our discovery that the free standing columns were capped with another characteristic Nabataean capital form—that with zoomorphic volutes (see fig. 4).[2] However, the chronological deductions from this would appear to

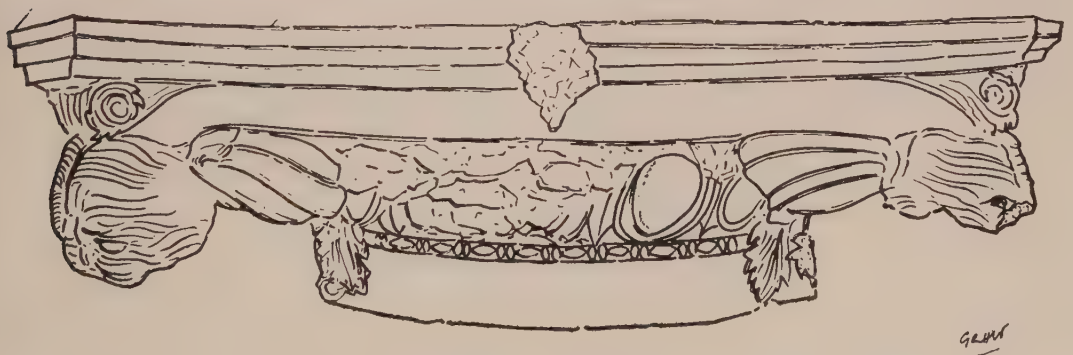


Fig. 4. Drawing of zoomorphic capital from free standing columns.

[1] His plan is defective in several details exclusive of the free standing columns.

[2] See also p. 134, n. 1.

lead onto a different[1] track: viz. that the effect of the Roman annexation, far from putting an end to Nabataean inspiration, resulted in a positive renaissance.[2]

The following then is a summary re-presentation of the monument at the present state of knowledge. It is ashlar faced with large blocks of pinkish sandstone bedded in mortar; dowels and cramps are not used. The courses vary from *c.* 40-60 cm. in height. The core of the structure is of rubble and mortar. This rubble, however, in large part recognizably conforms with the coursing and such layers are at intervals delimited by long, through blocks. The whole arrangement strongly recalls the manner of Roman concrete construction and is, of course, the *emplecton* of Vitruvius.

It is a gateway within the bounds of the city, designed in the form of a Roman Triumphal Arch. As a function for a Triumphal Arch, this is not irregular.[3] The design of the arch is of a late, developed form. It has three openings, a large central core and two smaller lateral ones, a feature unusual before the second century A.D.[4]; and is adorned with free standing columns, this not well attested before the latter part of the second century.[5] The breadth predetermined by the emplacement in an existing street, coupled with the determination of the architect to employ a three passage design, has resulted in, on standard cannons, a tall spindly structure. Incipient reconstruction has shown that this would have been untenable (to Western eyes) as a free standing monument, and emphasizes the fact that the arch was built up to its full height on both flanks.[6] This constriction was commented on by Bachmann,[7] but it must be appreciated that Nabataean proportions were quite other than classical (*cf.*, *e.g.*, the Qasr el-Bint, or the fantastic columns at Bosra[8]).

The articulation of the façade is strongly characteristic of Nabataean design. The system has been well analysed by Bachmann[9] and his analysis

[1] *I.e.* from Bachmann's " . . . in die ausgehende Peträische Dynastenzeit zu setzen sein " (*loc. cit.*, p. 56).

[2] *Cf.* P. J. Parr, " Recent Discoveries at Petra," *P.E.Q.*, January-June, 1957, p. 15.

[3] *Cf.* D. S. Robertson, *loc. cit.*, p. 293, and H. Plommer, *loc. cit.*, p. 335.

[4] *Cf.* D. S. Robertson, *loc. cit.*, p. 293, and H. Plommer, *loc. cit.*, p. 336. The salient exception seems to be the unusual arch at Orange which bears an inscription dated to A.D. 21, in honour of Tiberius.

[5] *Cf.* D. S. Robertson, *loc. cit.*, p. 293, and H. Plommer, *loc. cit.*, p. 314, n. 1. Cf. also C. Curtis, " Roman Monumental Arches ", *Supplementary Papers of the American School in Rome* II, p. 55: " This period [Hadrian to Severus] is distinguished . . . by the fact that within it the important innovation of free standing columns was made."

[6] See W. Bachmann, *loc. cit.*, p. 50.

[7] See *ibid*, p. 50: " Die drei Durchgänge sind auffallend klein . . . Merkwürdig ist nicht nur, dass die Erbauer dann nicht auf einen einzigen, breiten Mitteldurchgang hinauskamen, sondern die Nachteile eines dreiteiligen Fassadensystems in Kauf nahmen."

[8] See H. C. Butler, *Publications of the Princeton University Archaeological Expedition to Syria* 1904–1905 and 1909, Div. II, *Ancient Architecture in Syria*, Leiden, 1909, p. 252, ill. 225.

[9] W. Bachmann, *loc. cit.*, p. 55.

merits repetition and comment. The elements are two central half columns (on the East face, pilasters) and lateral features composed of coupled quarter columns and pilasters. The capitals are of the peculiar Nabataean form proper to Domascewski's *Hegrtyp*[1] tombs and described by Bachmann as *Bossenform*. This is an element of what Butler refers to at Bosra, as "a specific Nabataean order".[2]

This system is found in many of the façades (both rock-cut and built) of the Petraean monuments, and is directly derived from them. The adaptation may be illustrated as follows. First take the standard façade, distyle in antis,[3] the antae bearing responds of engaged half columns; close this by a wall face on the medial line of the columns. One is then left with a wall articulated into three panels by engaged half columns and coupled quarter columns and pilasters. Each of these panels may then be pierced as desired and the apertures framed with angle pilasters according to taste. That this system goes back to Alexandrian prototypes is undoubted.[4]

Thus much of the layout of the monument is certain and fairly recorded by Bachmann in his elevation. Above the main entablature, which survives (see Bachmann, fig. 46a), the design becomes conjectural. Some attic blocks have come to hand but details such as the height and crown mouldings are uncertain. There is no evidence of a pediment. The wall face above the lateral arches doubtless bore ornamental niches and some vestigial, small pedimental fragments probably belong here, but there are as yet no grounds for a reconstruction.

It remains to be mentioned that clearance of the fall about the east face has unearthed a large quantity of very interesting sculptural ornament in high relief.[5] This, together with the ornament *in situ*,[6] markedly qualifies Bachmann's statement[7] about the simplicity of the Arch. The execution of this together with the detail of the architectural ornament is

[1] They occur commonly in the rock cut façades at Medain Salih in the northern Hejaz.—the ancient Hegr.

[2] See H. C. Butler, *loc. cit.*, p. 238, ill. 212.

[3] *E.g.* at Petra, the built "palace" marked by Zibb Far'aun; see Bachmann, *loc. cit.*, p. 63, fig. 53.

[4] Although built monumental remains in Alexandria are lost, the ramifications of piers with attached half columns (*e.g.* the cordiform variety at the angle of a peristyle) are marked in the Alexandrian architectural province of Cyrenaica. The rock-cut tombs in the Alexandrian cemeteries are very cogent. "The engaged Doric half columns (or occasionally Corinthian pilasters) must in general correspond to the free standing columns of actual buildings; a quarter column stands on each side of the corners, with a plane strip between" (see A. W. Lawrence, *Greek Architecture*, Penguin Books, 1957, p. 247).

[5] See P. J. Parr, *loc. cit. passim.*

[6] *E.g.* on the angle pilasters of the east face of the central arch; see Bachmann, *loc. cit.*, fig. 47. These sculptured coffers (like the stucco ones on the antae of the Qasr el-Bint) probably reflect an original mode of revetting with metal plaques.

[7] See *ibid.*, p. 52.

of the highest quality. There is not space here to analyse the latter closely, but it may be observed that it is composed of standard Hellenistic forms and adaptations of such forms, together with some specific Oriental-Nabataean motifs. There is much writhing and intertwining foliate ornament.[1] Basically it would seem that the ornamental elements were similar on both faces; but there are variations in the base mouldings of the podium. Whether this is to be thought of as barbaric luxury or as reflecting the slightly different forms concerned (pilasters and free standing columns on the east face, as opposed to engaged half columns on the west) is difficult to assess.

In adducing comparative material, mention must immediately be made of Sī' (ancient Seeia) in the Hauran; and it is strange that Bachmann profited so little from Butler's publication of these monuments. The relevance is striking. "Ancient Seeia was not a town or a village, as the majority of sites in the Hauran, but an ancient high place, adorned with temples, enclosed courts, splendid gateways, etc."[2] "The third or outermost gate, that at the end of the long paved road that leads up from the valley, is one of the two monuments connected with the sacred precinct that show the influence of Roman domination."[3] Thus Butler's own words focus attention here. Furthermore the proliferation of the feature is so emphatic that it called into account the basic, oriental concept of the gate as a significant symbol. This is certainly of some import in explaining the nature of the ready reception of the Roman form in this context.

The Gate itself is demonstrably Antonine, or rather post-Antonine in date,[4] and in spite of some difference in ornament it incorporates a similar range of elements as the Petra Gate—that is, except the free standing columns. As at Petra the faces differed in the details of their treatment; the eastern face, that approached on entry to the sanctuary, being much more richly ornamented. On this face, in the central piers, instead of a half column being set between angle pilasters, there was a composite feature consisting of two lateral quarter columns bounding two adjacent pilasters, both these pilasters and the smaller angle pilasters being richly ornamented with rinceaux of a type which are present at Petra. The quarter columns were reeded, and the capitals were not of a Nabataean form but Corinthian and Ionic. It is possible to characterize the design as "an enlarged and multiplied facsimile

[1] *Cf.* the Roman Arch at Sī'. See H. C. Butler, Pt. II of the *Publications of an American Archaeological Expedition to Syria in* 1899-1900, New York, 1903: *Architecture and Other Arts*, pp. 363-4. A recent survey of this genre of ornament is to be found in R. Vallois, *L'Architecture Hellénique et Hellénistique à Délos* (Paris, 1944), pp. 290 ff., where metallic prototypes are asserted.

[2] See *ibid.*, p. 367.

[3] See *ibid.*, p. 395.

[4] Butler (*ibid.*, p. 361) notes that "it is built in the style of the temple at 'Atīl which is dated 151 A.D.",but finds some details suggestive of a later date.

of the doorway of the temple at 'Atīl "[1] and this again recalls the above-mentioned interrelation of façade and arch design.

Among the other analogous arches to the Petra Gate—both of them near in time and space—the Triumphal Arch of Gerasa (Jerash)[2] and the East Arch at Bosra[3] may be mentioned. Both are of basically similar design, but again they lack the free standing columns. The arch at Bosra, a smaller structure, has only a single central passage, with niches taking the place of the lateral passages. However, the system of façade articulation outlined above is common to them both. On the other hand, in Bosra there are *Hegrtyp* capitals which are not present at Jerash. This sensibly reflects the difference of origins of the two cities: Bosra being a native (Nabataean settlement before its choice by the Romans as a provincial capital—whereas Gerasa was to all intent a Seleucid creation, consequently the taste of its ornament is much more standard.

It will be seen that further study of the Petra Gate, when the southern half of the monument which remains choked with fall is cleared, should form an interesting contribution to this genre of Oriental Hellenistic art.

APPENDIX

The Capitals of the Arched Gate and the Chronology of M. Schlumberger's Heterodox Corinthian Capital

It has been seen that the analogies available permit some confidence in the dating of the Petra Gate. Naturally, then, one seeks to use it, if possible, as an anchorage for some of the fluent theories which welter in the chronological sea of Petraean studies. One of the most important of these, important because of its widespread application, is the analysis by M. Schlumberger of the then current capital forms.[4]

The essence of M. Schlumberger's[5] thesis is as follows. It is the Corinthian capital which is concerned in the vast majority of monuments. He defines the canonical form. Its elements are: (1) the acanthus basket at the base, from which emerge (2) 8 cauliculi, each sprouting a pair of scrolls giving (3) 16 scrolls, i.e. 8 angle scrolls and 8 medial scrolls. Vitruvius's capital is a version of this general form. Capitals of this type became standard in Syrian building during the Imperial Age, whereas previously Corinthian

[1] See *ibid.*, p. 362.

[2] See C. Kraeling, *Gerasa: City of the Decapolis*, New Haven, 1936, pp. 73-83.

[3] See H. C. Butler, *Princeton Expedition*, p. 240, ills. 214-217.

[4] *V.* M. Schlumberger, "Les Formes Anciennes du Chapiteau Corinthien en Syrie, en Palestine et en Arabie," *Syria* **14** (1933), pp. 283–317.

[5] *V.* ibid., p. 285.

capitals are freely designed with a variety of "heterodox" forms[1] (to one or other of which belong many of the capitals found on Nabataean buildings).

Now if these views are valid it is manifest that we have to hand a very useful chronological touchstone. But are they? M. Schlumberger's analysis of the forms and their inter-relations is illuminating and a most useful tool to the understanding of Nabataean architecture, but alas! clear formal distinctions do not necessarily import similar chronological distinctions. Survival is an inconvenient fact of art history.[2]

Let us examine the matter more closely. M. Schlumberger classifies (*v.* p. 287) his heterodox forms according to the decoration born by the capital between the angle spirals. This may take the form of: (1) Unorthodox spirals which may be distinguished from the medial spirals of the normal capital in that they do not spring from cauliculi. (2) Floral motifs. (3) Busts. At Petra it is the second of these classes which is of prime importance and M. Schlumberger has accordingly listed the occurrence of this type not only in the Arched Gate but in the Khazne, the Qasr el-Bint and other monuments. Even more important in this connection is a type which M. Schlumberger has convincingly shown to be a derived form. This is the capital of Butler's "Specific Nabataean Order" (Bachmann's "Bossenform") which is nothing other than a simple draught version of this class without ornament[3].

The subject matter of M. Schlumberger's analysis is thus directly before our eyes at Petra generally, and at the Arched Gate in particular. His chronological yardstick is to hand. "There is a succession from the many heterodox forms to the single normal form, the transition in Syria beginning during the reign of Augustus and during the first century A.D. in Arabia." The conclusion is inescapable. "Almost all the buildings and tombs at Petra" are Hellenistic[4]. It is doubtful if this conclusion would find general acceptance today, although it is obviously in the tradition of the earlier German school of comment, and of Wiegand's Petra party in particular. Indeed M. Schlumberger seemed at times to be uncomfortably aware of the far-reaching implications of his theory as witnessed by the following aside: "In Arabia the Nabataean form survives occasionally into the second century A.D." (*v.* p. 285, n. 2).

[1] The distinction between the canonical and heterodox divisions had been observed by Wiegand, who developed a theory accounting for the introduction of the former as due to the agency of the Imperial Architects at Baalbek. This view M. Schlumberger is at pains to refute; but the matter is of no direct concern here.

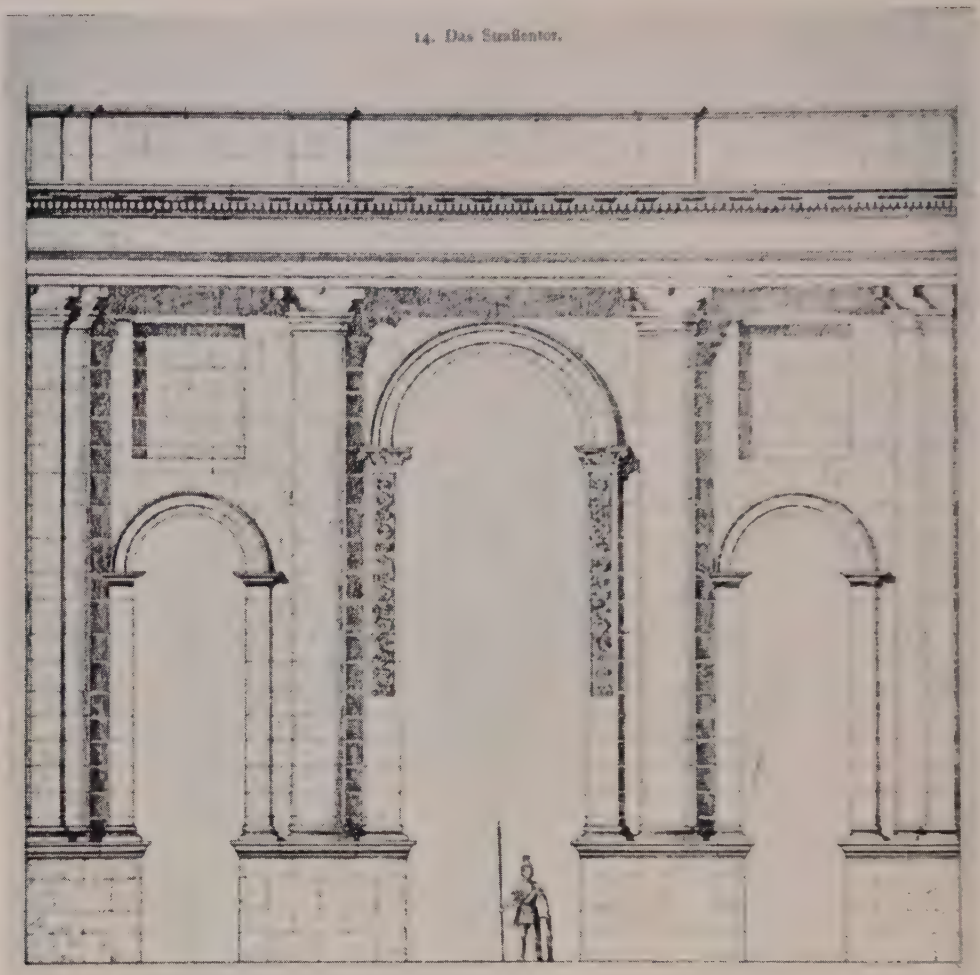
[2] N.B., in this context, the survival of e.g. the *Pylongrab* at Hegra.

[3] Critics such as Savignac who deny the connection, affirming that it would be absolutely impossible to sculpt out Corinthian capitals from this version, have confused the issue, since they are thinking of the normal type of Corinthian capital; *v.* Schlumberger p. 289, n. 10.

[4] *V.* ibid., p. 284, n. 8.

PETRA—THE ARCHED GATE

East Face of Gate—Northern Piers. Showing Pedestals with free standing column—partly restored.



A. Petra—The Arched Gate.
Bachmann's reconstruction of the west elevation.

B. A Seal from Petra.

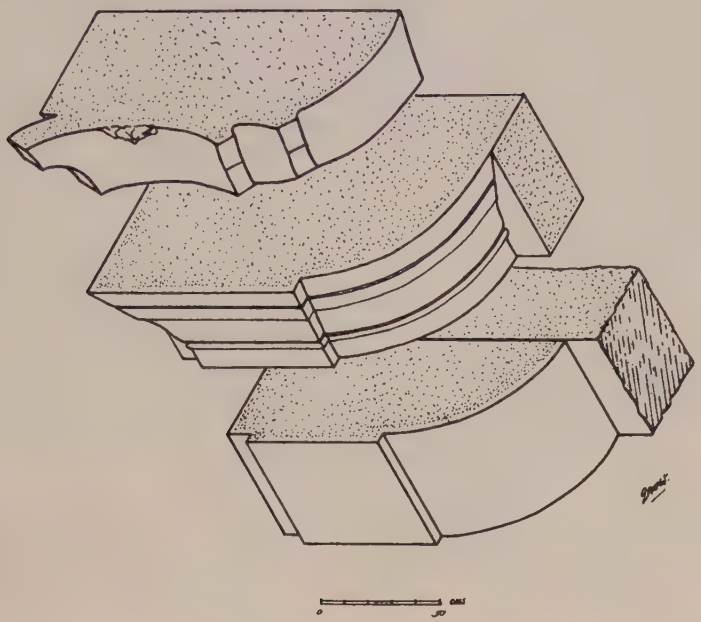


Fig. 5. West Face, Main Order. Capital of coupled pilasters and quarter columns.

Fortunately we are now in a position to do more than question on grounds of mere probability the application of this theory. As outlined above, recent investigation at Petra has shown the Arched Gate to date from the latter half of the second century A.D.[1]. We find *inter alia* the following types of capital employed. WEST FACE (1) Main Order—engaged half columns and coupled pilasters and quarter columns[2]—the draught version of M. Schlumberger's heterodox type no. 2. (2) Angle Pilasters of the central arch—

[1] *V.* p. 128, n. 5. We may hardly expect basic innovations in the design of Roman arches to be made in an outlying frontier province.

[2] N.B. the developed form of the characteristic Nabataean necking. This development is only achieved in the *Hegrtyp* tombs. At Petra it is general in this type and in the *Römisches Tempelgraben* (*v.* B. & D., I, pp. 151–171; cf. R. Vallois, *L'Architecture Hellénique et Hellénistique à Délos* (Paris, 1944), p. 317, n.1.

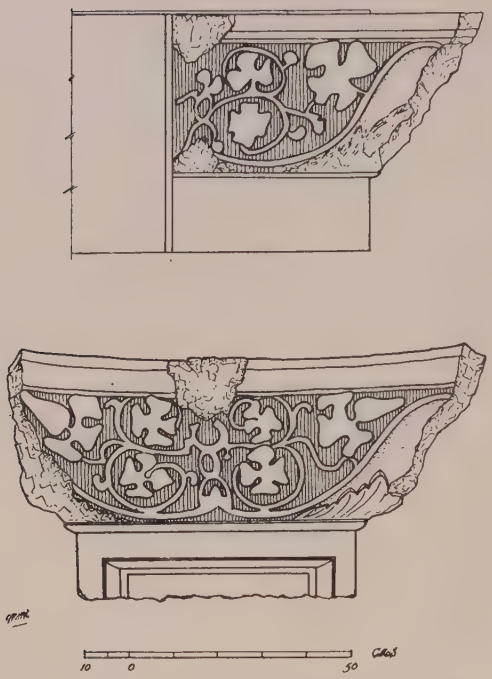


Fig. 6. West Face. Capital of angle pilasters of central arch.

M. Schlumberger's heterodox type no. 2 with intertwining floral ornament similar to the upper order of the Khazne[1].

The fact is that M. Schlumberger's chronology of heterodox Corinthian capitals is in direct conflict with the accepted chronology of the Triumphal Arch. Unless the latter is to be completely reconsidered, it is M. Schlumberger's qualification (quoted above) which forms the true conclusion to

[1] And to those of the door frames of the side chambers: *v.* K. Ronczewski, " Kapitelle des El Hasne in Petra ", *J.D.A.I.*, 1932 (quoted by Schlumberger, p. 289); *Archaeologischer Anzeiger* 1932, col. 38, figs. 11–16. The angle pilasters of the lateral arches show a respectable succession of classical mouldings enriched with egg and dart and dentils (*v.* Bachmann, fig. 46b.). The east face seems to bear a similar arrangement, " Nabataean capitals " for the main engaged order and heterodox type 2 for the angle pilasters of the centre arch (*v.* Bachmann, fig. 47), while the free standing columns are capped with the capital bearing zoomorphic volutes (*v.* fig. 4). This, apparently common in the vicinity of Petra (*v.* P. J. Parr, " Nabataean Sculpture from Khirbet Brak ", *Annual of the Dept. of Antiquities of Jordan*, IV-V, 1960, p. 135, pl. XVI), can only be a Nabataean twist to the Ionic capital, and seems thus the regional equivalent to Schlumberger's heterodox type 3, which is universal in the Nabataean sites of the Hauran. The author hopes to publish a survey of the Nabataean capital forms in a forthcoming issue.

this issue: " In Arabia the Nabataean form survives occasionally into the second century A.D."[1].

This survival was quite other than occasional—it was endemic. The basic aspects of the matter have been well brought out by Avi–Yonah during the course of a penetrating study of " Oriental Elements in Palestinian Art." He adverts to the work of M. Schlumberger when dealing with the characteristics of the Orientalizing Corinthian Capital of Hellenistic date, and states; " These characteristics continue to develop after a temporary eclipse in the second century A.D. Indeed the gap between the latest heterodox capitals from Nabataean Bostra and Khirbet et-Tannur and the earliest heterodox capitals from synagogues in Galilee is comparatively narrow ".[2] In fact there is no such essential gap in the use of oriental forms of the Corinthian capital in the orient. The occurrence of normal or western forms may be of chronological significance,[3] but the occurrence of the heterodox forms is not the yardstick M. Schlumberger asserts.

[1] Indeed the salient nature of these occasional survivals caused M. Schlumberger to have second thoughts about his aside and to incorporate it in his conclusion," . . . alors qu'en Arabie les formes heterodoxes restent d'un emploi courant jusqu'a l'époque flavienne au moins, et apparaissent isolément plus tard encore " (*v.* p. 317). In note 3 their appearance on the Tomb of Sextus Florentinus (manifestly post A.D. 106) and the Arched Gate is recorded, making reference to Ronczewski's dating of the latter to Trajanic times because of the " stark plastiche Ornament " of the pilasters —a somewhat secondary chronological determinative.

[2] *V.* Avi-Yonah, " Oriental Elements in Palestinian Art," *Q.D.A.P.* **13** (1948).

[3] Cf. " With the reign of Augustus and the consolidation of Hellenism, there followed a marked return to orthodox classical orders standardized by Vitruvius " (*v.* Avi-Yonah, p. 51).

A SEAL FROM PETRA

By Alan Millard

Description of seal: white marble; conical, with octagonal base; greatest height 2·5 cms., engraved face 2 cms. high and 1·5 cms. wide; pierced for suspension. The engraving, in " drill and wheel " technique, depicts a bearded figure standing left, wearing a long robe and turban, with arms raised towards a tall six-branched tree standing on a pedestal, or possibly in an enclosure. Feet of figure and part of pedestal broken. (Pl. XVIII B.)

The conical stamp seal with octagonal base is a type common in the late Assyrian and Neo-Babylonian periods in Mesopotamia (*e.g. Iraq* **17** (1955), pl. XIX, 1 and p. 108; *ibid.* **21** (1959), pl. X. 50–61 and p. 33). Impressions show that these seals continued in use during the Persian period (*e.g.* Delaporte, *Catalogue des Cylindres Orientaux* II, pl. 121, 1, 3). The examples cited all have the motif of a worshipper standing before divine emblems. Two stamp seals from East Jordan are of similar form and design, and are dated by context to the latter part of the 7th century B.C. (from the " tomb of Adoni-nur " near Amman *P.E.F.A.* **6** (1953), p. 53 and pl. VI, 4; and from a tomb at Meqabelein *Q.D.A.P.* **14** (1950), p. 46 and pls. XIII, 2 and XV, 9). Others have been found at Samaria (*Samaria-Sebaste* III, pl. XV, 19 and pp. 87f., nos. 19 and 41). Several seals of this type include a sacred plant or ear of corn among the divine emblems (*e.g.* Delaporte, *op. cit.* I, pl. 54, 27, also B.M. 103348) but the design on our Petra seal, of a worshipper before a tree, is not recorded on any other stamp seal of this form, so far as can be ascertained. It is, however, prominent on numerous cylinder seals of the late 8th and 7th centuries B.C., though it is uncommon thereafter (*cf.* Frankfort, *Cylinder Seals*, pls. XXXIII, h, XXXV, d; Wiseman, *Cylinder Seals of Western Asia*, p. 41 and pls. 66, 83). On certain cylinder seals the tree is displaced by the figure of a god or by divine emblems, suggesting that the tree itself is a divine symbol (Frankfort, *op. cit.*, p. 204f.; Wiseman, *op cit.*, p. 40). The occurrence here of a tree in the position normally occupied by divine emblems supports this theory.

There can be little doubt that this seal was found in Petra, where it was seen and drawn. The sherds of Early Iron Age pottery which litter the surface of Umm el-Biyara, overlooking the Petra basin, testify to the occupation of the region in the mid-first millennium B.C.

This seal of Mesopotamian type, together with another from Petra bearing an inscription in old Hebrew letters (*Q.D.A.P.* **11** (1945), p. 82), bear witness to the higher aspects of late Edomite civilization.

BICHROME WHEEL-MADE TANKARDS FROM TELL EL-'AJJUL

By Claire Epstein

Up to the present only one complete vessel has been published from a Palestinian site which could be classified as a Bichrome Wheel-made Tankard. This is a jug from Tomb 1100 C at Megiddo[1], which in shape and decorative details is typical of the above category, known for the most part from sites in East Cyprus[2]. Its characteristic features may be summarized as follows: a distinctly narrow shoulder and wide neck, flaring towards the rim; emphasis on the neck as an important field of decoration and its division into successive registers; the band handle,painted in a series of oblique crosses and horizontal lines; the so-called "Union Jack" and barred panels, alternating with reserved panels on the neck; the upper band of horizontal zig-zig lines in black and red below the rim; and the groups of oblique lines on the shoulder.[3]

So far, no specimens of this kind of vessel were known from Tell el-'Ajjul. However, there is a considerable amount of material which was not included in the published reports (*Ancient Gaza* I-V) and which was insufficiently sifted and checked by the excavators. After the allocation to various museums of certain vases and sherds by Petrie, the great bulk of the material he excavated was brought to England, and to-day forms the nucleus of the collection in the Palestine Gallery at the Institute of Archaeology, London[4]. Most of the complete vessels and a large number of the sherds are marked with their find-spots, but many bear only a general indication as to provenance (e.g. A[jjul] II, i.e. Level II). Among this material there are six sherds (to be described fully under) which there is every reason to consider as fragments of Bichrome Wheel-made Tankards[5].

[1] P. L. O. Guy and R. M. Engberg, *Megiddo Tombs* (1938), Plates 48:3 and 147:6.

[2] H. B. Walters, *British Museum Catalogue of Greek and Etruscan Vases*, Vol. I, Part II (1912), p.138, fig. 271; A. Westholm, "Some Late Cypriote Tombs, Milia," *QDAP* **8** (1939), Plates II and IV: 3, 4; W. A. Heurtley, "A Palestinian Vase Painter, *c* 16th cent. B.C.," *QDAP* **8** (1939), Plates XX, XXII, XXIII: a, b, c, f, g, and XXIV; E. Gjerstad *et alii*, *SCE* **1** (1934), pl. LXXX: 162; C. F-A. Schaeffer, *Enkomi-Alasia* (1952), figs 71: 265 and 77: 5.

[3] Compare *QDAP* **8**, Plates II:3 for shape; XVIII:q for handle decoration; XIX:b for zig-zag lines below rim; XX:d, XXI:b–g, XXII:a,c,d,e,h and i for oblique lines on shoulder.

[4] I wish to thank Dr. Kenyon for allowing me to examine all available material from Tell el-'Ajjul and for permission to publish the sherds form the Institute of Archaeology collection.

[5] I am grateful to Miss J. du Plat Taylor and to Dr. Paul Åström for having examined the sherds and confirmed this opinion.

Fig. 1. Tankard sherds from Tell el-'Ajjul
Above (left to right), Nos. 1–3. Below (left to right), Nos. 4–6.

The sherds have come to light in the course of a general examination of the 'Ajjul bichrome material and they are here published for the first time. Five out of the six sherds are marked generally in the manner described, and only one has a specific find-spot written on it. This is to be regretted, since were more exact details available as to the context of the sherds, it would be possible to date them with greater accuracy and thus obtain a more precise knowledge of their *floruit* than is possible from the tombs at Milia, Enkomi or Megiddo which were in use over a prolonged period. This need not detract from the basic importance of the fact that at Tell el-'Ajjul, where bichrome ware was so abundantly found, the tankard form also occurs; and it should be noted that not only is this the first mainland site where more than one tankard (even in fragmentary form) is present, but that these jugs all come from an occupation level (as distinct from a tomb context).

The finding of tankards or tankard fragments at Megiddo and at 'Ajjul gives rise to the possibility that they may indeed have been found in the past at other Palestinian or Syrian sites where the better-known forms of bichrome ware have been excavated, without their having been recognized as such at the time. In this connection a flat shoulder sherd from Tell el-Ḥesy may be cited (published over 60 years ago!)[1]. This sherd (for a new drawing of which see fig. 2(*a*)) is decorated with horizontal zig-zag lines in red and black —a motif common on the necks of tankards and up to now known exclusively as such. It is, however, extremely likely that the Tell el-Ḥesy sherd is an example of the use of this form of decoration on the shoulder, since a close

a *b*

Fig. 2

showing (*a*) Tankard sherd from Tell el-Hesy; (*b*) suggested incorporation of sherd from Minet el-Beida

[1] F. J. Bliss, *A Mound of Many Cities* (1898), p.63:109. This sherd is now in the Institute of Archaeology, London, and has been examined.

study of the tankards shows that all possible variations of the decorative repertoire were used on different parts of the vessel. Another instance of a possible tankard sherd already published, is one from Minet el-Beida[1]. This is also decorated with a panel of black and red zig-zag lines, as well as part of a fish's head facing right and followed on the jug's shoulder by a panel of dot-filled lozenges. The latter motif is usually used horizontally on tankard necks, while the fish is a typical bichrome ware design element, though it occurs somewhat infrequently on tankards and in this case postulates a frieze of fish on the upper shoulder similar to the bird friezes which are commonly depicted. Should the identification of this sherd be correct (I regret that I have not been able to examine it), the unusual feature would be the use of the zig-zag line panel on the lower body, since only rarely is this part of the vessel decorated[2]. As for the handle, what is visible of the decoration at its base, could easily form part of any one of the often-used motifs on tankard handles[3].

With the addition to the known Megiddo specimen of others from two south Palestinian sites and, in all probability, from a north Syrian one, the whole question of the origin of Bichrome Wheel-made Tankards is seen from a new angle. Cyprus ceases to be the sole country of their usage (where these vessels were found almost exclusively in tomb contexts) and added weight is given to Gjerstad's view[4] that they were, in fact, not Cypriote. Heurtley, in his much quoted-article, is also of the same opinion, though for different reasons[5]; while Sjöqvist also considers them to be "Syrian imports"[6]. This consensus of opinion regarding the non-Cypriote origin of the Bichrome Wheel-made Tankards is thus gradually being substantiated by archaeological evidence; and since there are many sites yet to be excavated where bichrome ware can be expected to be found, both in Palestine and along the Syrian coast, there is every probability that with the better-known forms of this ware, additional tankard specimens will also come to light.

The following is a description of the tankard sherds from Tell el-'Ajjul:

1. Sherd (5·5 by 3 cm.) of buff ware, self-slipped and burnished. Slightly curved, with even wheel-marks inside. From neck of vessel. (May come from same jug as No. 6.)

Decoration: in black and orange.

[1] C. F-A. Schaeffer, *Ugaritica* II (1949), fig. 50:23; see also suggested incorporation in tankard, fig. 2 (*b*).

[2] *QDAP* **8**, Plates XX:b and XXI:a.

[3] *Ibid.*, Plate XVIII: m-y.

[4] E. Gjerstad, *Studies on Prehistoric Cyprus* (1926), pp.306 ff.

[5] *QDAP* **8**, p.33.

[6] E. Sjöqvist, *Problems of the Late Cypriote Bronze Age* (1940), p.103.

TANKARD SHERDS NOS. 1–5 FROM TELL EL-'AJJUL
(Institute of Archaeology Photo)

Tankard Sherd No. 6 from Tell El-'Ajjul
(Institute of Archaeology Photo)

Design motifs: black latticed triangles outlined in bichrome border (black-red-black), with triangular reserved space between each pair of triangles. Above and below them, a bichrome band[1]; above, traces of a rectilinear reserved panel.

Provenance: A II

2. Sherd (4·5 by 5 cm.) of thick, well-fired pink ware, with cream slip and burnishing. Almost flat, with wheel marks inside, curving to carination line of shoulder at lower bichrome band. Slight flaring, probably indicating the base of neck, where groups of oblique lines meet. From shoulder of vessel.

Decoration: in grey-black and bright red.

Design motifs: groups of oblique black lines, below which are two bichrome bands separated by a reserved space[2].

Provenance: A II

3. Sherd (6 by 4·5 cm.) of soft burnished pink-buff ware, with buff slip. Curved, with close wheel marks inside. From neck of vessel.

Decoration: in black and orange-red.

Design motifs: joined bichrome wheel pattern with red spokes, bordered above and below by a double bichrome band (black-red-black-red-black)[3]; above, traces of corner of rectilinear reserved panel.

Provenance: MP 1017—equivalent to " Palace III "[4].

4. Sherd (3 by 4·5 cm.) of well-fired, pink-buff ware, with pink slip and burnishing. Curved, with wheel marks on inside, gradually smoothing out and with slight widening of circumference at level of horizontal band, indicating either the juncture of the neck and shoulder or, possibly, the out-curve of the rim.

[1] Compare *QDAP* **8**, Plates XX:a, XXI:f, and XXIII:g.

[2] This is the most usual manner of decorating the tankard shoulder, and see note 3 above.

[3] Compare *QDAP* **8**, Plates XXI:e and XXII:b.

[4] Flinders Petrie, *Ancient Gaza* II (1932), Plate XLVIII. On this plan MP is actually outside the " Palace III " building, but 1017 is equivalent to its levels in the nearest sections.

Decoration: in black and plum-red.

Design motifs: a double horizontal bichrome band, above (or below) which there is a rectilinear reserved space and a vertical latticed panel outlined by a bichrome band[1].

Provenance: A II

5. Sherd (4·5 by 4 cm.) of very soft, pink ware, with self slip and burnishing. Flat, with wheel marks inside. From shoulder of vessel.

Decoration: in black and red, both faded.

Design motifs: a frieze of stylized small fishes (four visible), the eyes picked out in red and noses pointing upwards to a bichrome band[2].
Above, groups of oblique bichrome lines incline towards an upper bichrome band[3]. From shoulder of vessel.

Provenance: A II

6. Large, circular sherd (total diameter: 9·5 cm.) of soft, pink-buff ware, with self slip and burnishing. From neck of vessel, having regular close wheel marks inside.

Decoration: in black (faded to grey in parts) and orange.

Design motifs: in lower register, small rectilinear panels composed of oblique orange crosses on a reserved ground, alternating with panels of contiguous vertical bichrome bands[4]. Above this, an upper register of black and orange zig-zag lines, framed by vertical bichrome bands, alternating with a rectilinear reserved panel[5].

Provenance: A II.

[1] Latticed panels do not appear on any of the published tankards. This is, however, a very common motif on bichrome ware vessels of all kinds and it is used on the necks of two tankards in private collections, one in Jerusalem, Israel, and the other in Larnaka, Cyprus.

[2] No other instance is known of a row of fish combined with groups of oblique lines in bichrome. Fish are used to decorate tankard necks—see *QDAP* **8**, Plates II:4 and XX:f. In this instance the approach to the decoration is unusual.

[3] The use of oblique lines in black and red is not common, but is found on an unpublished tankard (No. 60660) in the collection of the Ha'aretz Museum, Tel-Aviv.

[4] This motif is also used in a narrow band below the rim on an unpublished tankard (No. 1951/111–2/2) in the Cyprus Museum, where the cross is in black. The motif is familiar from handle decoration (in black) and from shallow bowls (in bichrome). For the latter see *Ancient Gaza* IV (1934), Plate XLIV:10, *Hazor* I (1959), Plate CXXIV:1 and *Ugaritica* II, fig. 50:11.

[5] Compare *QDAP* **8**, Plates II: 2, XX:b, d and XXII:d.

THE POSSIBILITY OF THE PRESENCE OF CASUISTIC LEGAL MATERIAL AT THE MAKING OF THE COVENANT AT SINAI

By F. C. Fensham

According to the well-known form analysis of the legal material of the Pentateuch by A. Alt in 1934 we can distinguish two types of law, viz. apodictic and casuistic laws. The former is couched in the direct form of the second person and gives prohibition.[1] The latter is couched in the typical form of the Near Eastern legal material beginning with " if . . . "—clauses. In Hebrew this type is introduced by *ki* in the main clauses and continued by *'im* in the minor cases.[2] In spite of criticism of Alt's contention we thoroughly agree with his form analysis.[3] But we cannot agree with his view on the historical development of the casuistic material.[4] Alt worked the hypothesis that the apodictic laws were genuine Israelite, but the casuistic legal material was borrowed from the Canaanites, presumably by the Minor Judges.[5] This opinion of Alt is not accepted by his student M. Noth. He connects

[1] Cf. A. Alt, *Kleine Schriften zur Geschichte des Volkes Israel*, I, pp. 302ff. There are other stylistic types of this same category also discussed by Alt.

[2] A. Alt, *op. cit.*, p. 287.

[3] Cf. B. Landsberger, *Symbolae ad iura orientis antiqui pertinentes Paulo Koschaker dedicatae*, p. 223 note 19; T. Meek, *A.N.E.T.*, p. 183 note 24; G. Mendenhall, *Law and Covenant in Israel and the Ancient Near East*, p. 7. In a forthcoming paper I have argued against this view.

[4] Cf. F. C. Fensham, "Enkele aspekte van die voortgang van die goddelike openbaring", *N.G.T.T.*, **1**, p. 60.

[5] Alt, *op. cit.*, pp. 295ff. He places the *Sitz im Leben* of these laws in the Canaanite cities in the city-gate where decisions were made. The existence of this kind of jurisprudence is not to be denied and its presence before the Israelite conquest is now confirmed by the Ugaritic texts. Cf. *Aqht*, A, v, 4–8. Cf. also L. Köhler, *Hebrew Man.*, pp. 149 ff. On the other hand we may ask the question: Is the casuistic legal material to be associated with the *Kulturland* and to be dissociated from nomadic life? Cf. Georg Fohrer's question with regard to Albright's *From the Stone Age to Christianity* in *A.f.O.*, **18**, p. 433. This question must be answered in the negative. The door of the tent of the nomads could as well have been the *Sitz im Leben* of certain casuistic legal material. It is well known to students of modern nomadic life in Palestine and Arabia that people travelled scores of miles to get a decision of a famous judge. Cf. Albright, *The Biblical Period*, p. 21. This is the very background of casuistic law. It is also true that some casuistic material was assimilated in the *Kulturland*. Other material could have originated after the conquest when the Israelites had to adjust them to the new circumstances, comparable to the development of Muslim law. Cf. G. H. Bousquet, *Précis de droit Musulman*, I, p. 28 and C. Snouck Hurgronje, *Selected Works*, pp. 48ff. In the light of this I do not think that we can bind casuistic legal material just to the *Kulturland*.

the Minor Judges with apodictic law and emphasizes the fact that they were officials who acted at the annual festival.[1] They read the laws at the festival. This idea is further developed by H.-J. Kraus who sees the Minor Judges as *Bundesmittler* and partakers in a *prophetisch-charismatische Rechtsverkünder* office.[2] We may ask the question: Is the casuistic material definitely to be connected with Canaanite culture? Some scholars like Albright and Mendenhall have grave doubts against this contention.[3] Their criticism is mainly based on the differences of social structure of Canaanite and Israelite communities.[4] New material on nomadic and semi-nomadic life gives us a new picture and shows that some of the laws as present in the Covenant Code could have had a semi-nomadic background.[5]

There is also difference of opinion about the reliability of the historical background of the Sinai tradition. In spite of all the literary problems concerning the Sinai tradition discussed fully by G. von Rad, I think the view that this tradition concerning the covenant has no historical basis, is unacceptable.[6] The oldest parts of the Old Testament refer to the Lord as coming from the Sinai peninsula to Palestine.[7] It is true that these parts are not referring to the covenant, but to the power of Yahweh; still we may assume that this powerful epiphany of the Lord is closely connected to the covenant idea.[8] The central rôle of Moses as lawgiver or law-receiver at Sinai, according to the Old Testament tradition, is not to be denied.[9] Noth's view is that the Amphictyony originated in Palestine and that the covenant was also formed in Palestine after the conquest.[10] It may be granted that certain elements were assimilated in Palestine, but the Old Testament tradition of the covenant at Sinai is more acceptable than any modern reconstruction of it. Lately G. Mendenhall has pointed out that the form of the covenant of the Hittite kings with their vassals, as discussed by Korošec, is analogous to the form of the covenant between Yahweh and his people.[11] Mendenhall succeeds in drawing an important parallel which is to be dated in the fourteenth–thirteenth century B.C., roughly contemporary to the time of Moses.

[1] M. Noth, "Das Amt des Richters Israels" in *Festschrift für Alfred Bertholet*, pp. 404–417.

[2] H.-J. Kraus, *Die prophetische Verkündigung des Rechts in Israel*, p. 14.

[3] Cf. Mendenhall, *op. cit.*, pp. 13–14.

[4] Cf. the writer's article, " The Judges and Ancient Israelite Jurisprudence," in *Die Ou Testamentiese Werkgemeenskap in Suid-Afrika*, p. 19.

[5] Cf. various studies of Nelson Glueck of which the latest is " An Aerial Reconnaissance of the Negev " in *B.A.S.O.R.*, 155, pp. 2ff. Cf. also the important monograph of J.-R. Kupper, *Les nomades en Mesopotamie au temps des rois de Mari*.

[6] Cf. G. von Rad, *Gesammelte Studien zum Alten Testament*, pp. 20ff.

[7] Judg. v, 4–5, Hab. iii, 3–4. Cf. also the writer's contention in *Die Bybel met Verklarende Aantekeninge*, p. 504.

[8] Cf. Ex. xix, 16.

[9] Cf. e.g. J. Bright, *Early Israel in Recent History Writing*, pp. 85–86.

[10] M. Noth, *Geschichte Israels*, pp. 120ff.

[11] Mendenhall, *op. cit.*, pp. 24ff.

Regarding the form of the vassal treaties nobody, as far as my knowledge goes, has drawn the attention to the important fact that in the third group, according to Korošec's division, the stipulations are couched in the casuistic style.[1] From a stylistic standpoint it is to be noted that the casuistic stipulations, in the typical form of casuistic legal material, are closely related to the treaty or covenant. This was not only the case with the Hittite treaties, but we can compare them with certain treaties from Alalakh. Two treaties are important, namely one between *Ir-IM* of Tunip and Niqmepa of Alalakh, and the other between Aban and Iarimlim.[2] The form of these treaties is not absolutely analogous to that of the Hittite treaties, because these were made between equals. Take, *e.g.*, the former. Unfortunately the prologue is too much mutilated to get any clear impression of what was said. It is only obvious that an agreement was made. The important fact is that scores of stipulations on *e.g.*, the right of asylum, rights of persons, fugitive slaves, theft, loss of a person in custody, inter-territorial theft, marauders, etc., follow. All these stipulations are formed in the casuistic style beginning with *šumma*, "if". This treaty can be dated in the fifteenth century B.C., because of the fact that Šauššatar was overlord of Niqmepa.[3]

In the light of these parallels, would it then be strange to expect the casuistic style with the covenant between Yahweh and his people at Mt. Sinai? If we accept the basic historical fact of the covenant at Sinai and if we accept the fact that the Hebrew peoples, who were slaves in Egypt, were participators in the covenant, is it then far-fetched to assume that they already had certain casuistic laws to protect their community and internal affairs, and that these laws were reinstituted at Sinai? This may be regarded as *argumentum e silentio*, but according to the biblical tradition the Hebrews did not assimilate with the Egyptians, and would have had their own legal principles. Take, for instance the case of the rape of a virgin, the case of theft, the case of a goring ox, etc. In every one of these cases certain rules would have been applied in the Hebrew community. It might have been legal stipulations transmitted through many centuries, even from the time of the patriarchs. I do not think that it is correct to assume that the Hebrews were a mob without law and order before they arrived at Sinai or later in Palestine. It is obvious from modern parallels that nomadic and semi-nomadic tribes in Palestine have their own legal principles.[4] The legal material of the Hebrews might have been of various origins. The rôle of Egypt in this respect is not at all

[1] Cf., e.g., Goetze's translation in *A.N.E.T.*[2] p. 204, 208.

[2] D. J. Wiseman, *The Alalakh Tablets*, pp. 27–30, and "Abban and Alalah," *J.C.S.*, **12**, No. 4, pp. 124ff.

[3] Wiseman, *op. cit.*, p. 7 and A. Moortgat in Scharff-Moortgat, *Ägypten und Vorderasien im Altertum*, p. 341.

[4] Cf. note 5 and T. Ashkenazi, *Tribus semi-nomades de la Palestine du nord*, pp. 56ff.

clear, because of the lack of a legal code.[1] The bulk of material has too many parallels with cuneiform law to be sheer chance.[2] Some common background with the Mesopotamian world is the only explanation. This contact might have been in the time of the patriarchs which is an established fact according to the biblical tradition and according to parallels between Nuzi legal material and legal practices of the patriarchs.

In light of all these arguments, I think that the possibility of the presence of casuistic legal material at the forming of the covenant at Sinai is likely.

[1] Cf. J. A. Wilson, *The Culture of Ancient Egypt*, pp. 49–50 and H. Cazelles, *Études sur le code de l'alliance*, pp. 164–166.

[2] Cf. the writer's unpublished Johns Hopkins dissertation *The Mišpāṭîm in the Covenant Code*.

AN ARCHAEOLOGICAL AND PHILOLOGICAL NOTE ON JOB xxxii, 19

By A. Guillaume

In antiquity before the invention of corks the bottling of wine, whether it was to be contained in jars or skins, presented a problem to those who liked a mature wine. Mr. R. J. Forbes,[1] who has gone carefully into this matter in some detail, shows how the ancients were familiar with the whole process of treading the grapes, bottling the wine, and its preservation and exportation far and wide in large jars. After partial fermentation the wine was stored in a cool place and clay stoppers were fixed in the jars. The writer says: " from the texts we learn that wine could be stored up to three years, though many jars were found burst by the pressure of the gases developed by fermentation in the jars."[2] Unfortunately he has not made it clear where the texts and the broken jars were found. Nevertheless the fact remains that sealed jars could not be trusted to retain their contents for more than a limited period.

The method of securing wine-jars with stoppers was universal in the wine-drinking world. Clay stoppers dating from the Mycenaean age have been discovered, and as we shall see the Palestinian vintners of the sixth century also stored and sold their wine in jars sealed in this way.

My attention was focused on the question of how wine was contained and distributed when I began to write the second instalment of what may well prove to be a supplement to the Hebrew and English Lexicon.[3] Some hundreds of Hebrew words have been explained or illustrated from cognate words in Arabic, and a hundred or two more will be dealt with in the next issue of *Abr-Nahrain*. Among these latter is the word *'ōbhōth* in Job xxxii, 19, which is rendered " wine-skins " in RVm., and in Brown, Driver, and Briggs' edition of Gesenius's *Thesaurus* (*BDB*). The editors confessed that the derivation and significance of the word is " totally uncertain," and it was my task to throw light on the question. The Arabic word we need is *wa'b*, which means a wide vessel, shaped like a cup or bowl, derived from what was doubtless the primitive meaning: a round cavity in a rock which retains water. This being so, it is clear that Elihu in our text is not talking of skins but of jars.

[1] *Studies in Ancient Technology* (Leiden, 1955), p. 71.

[2] *Op. cit.*, pp. 75–77.

[3] The first instalment appeared in *Abr-Nahrain*, Leiden, I (1961), pp. 1–35.

The passage reads:

hinneh biṭnī keyayin lō' yippātēaḥ
ke'ōbhōth ḥadāshīm yibbāqēa'
Behold my belly is like wine that has no vent,
Like jars of new wine it is ready to burst.

S. R. Driver in *I.C.C.*, 282 explained admirably the meaning of the verse: " my belly " stands for " the words in my belly " and " new wine jars "[1] stands for " jars containing new wine." As has just been said, the bursting of wine-jars was a familiar phenomenon in antiquity. It hardly needs saying that jars were in daily use among the Hebrews; their use is attested in the Old Testament from Genesis to Ecclesiastes, but the jars mentioned there, called *kaddīm*, contained water or meal.

Now it is obvious that wine contained in skins is just as prone to burst its container as wine in amphorae, indeed it would be more likely to do so. We know from Mt. ix, 17 that wine was bottled in skins, and that new skins were provided for new wine where the degree of fermentation would be much higher than in old wine, unless the owners were too poor to buy a new skin. It is probable that modern translators have been influenced by this reference to wine-skins in the New Testament, but Job and his companions were not poor men, but rich shaykhs.

It will not have escaped notice that the ancient translators could make no sense of this verse, except for Jerome who writes *lagunculae*, and something more must be said to justify the rendering " jars."

First of all I was delighted to find that Rabbi Jonah (Abū'l-Walīd Marwān ibn Janāḥ)[2] translated *'ōbhōth* by *khawabi'* which means amphorae; and so, though he does not make the philological connexion between *khawābi'* and *wa'b*, yet he would have agreed with it, had the word denoted a jar in his day. In this connexion it must be remembered that Old Testament scholars have never been able to agree either on the date of the Book of Job or its provenance, and the two questions are interrelated. A Hebrew book strongly impregnated with Arabic would seem to have originated from a land east of the Jordan, and on the whole, as Pfeiffer[3] maintained, it is probable that the author was an Edomite. No inscriptions or documents in the Arabic language are known until well into the Christian era a thousand years later than the Book of Job, though the Septuagint in its various recensions shows from time to time that the translators were familiar with words that are known to us only in classical Arabic. It would be unreasonable to expect that words that are found in the Arabic we know would bear precisely the same meaning as they bore a millennium earlier in a district in the Arabian peninsula some hundreds of miles distant from the home of classical Arabic.

[1] The author retains the rendering " new wine-*skins*."

[2] *Kitabu l-Usul* (Oxford, 1883), p. 25.

[3] *Introduction to the Old Testament* (London, 1952), pp. 678ff.

Secondly it may be recorded that " the daughter of jar," *bintu-'l-khābi'a*, not " daughter of the skin," was the sobriquet the Arabs applied to wine.

Thirdly at Gibeon J. B. Pritchard discovered 54 jar handles inscribed in the old Canaanite script with the name of the town and the names of the makers of the wine, and in addition some 40 or more clay stoppers which fitted perfectly the mouths of the inscribed jars. He printed photographs of the stoppers and the handles and a filter which was found with them.[1] The jars probably date from the 6th century B.C., a date to which the Book of Job could well be assigned. Dr. Kathleen Kenyon kindly told me that in the Phoenician settlement at Sabratha similar jars fitted with stoppers fixed in position by plaster were discovered, and these may be seen in the Institute of Archaeology in London.

Fourthly there is indirect evidence from the Old Testament itself which might be overlooked by those who are not familiar with the literary device of the Arabs which they called *jinās*. This is the use of two words which are outwardly the same, or all but the same, but bear entirely different meanings, in the same context. The reader should not be burdened by examples; it will suffice to say that Muhammad in the Koran and the Arab poets in their verses employ *jinās* from time to time. The English reader will find a fairly full exposition of the place of *jinās* in Near Eastern literature in reference to the Ra'su' l-Shamrā' tablets in an article by Joshua Finkel entitled " An Interpretation of an Ugaritic Viticultural Poem."[2]

The passage where *jinās* occurs is Jer. xiii, 12–14 which runs: "Every jar (*nēbhel*) shall be filled with wine: and they shall say unto thee, Do we not know that every jar shall be filled with wine? And thou shall say unto them, Thus saith the Lord, Behold I am about to fill all the inhabitants of this land, the kings which sit for David upon his throne, the priests and the people, and all the inhabitants of Jerusalem, with drunkenness. And I will dash them one against another, the fathers (*'ābhōth*) and the sons together, saith the Lord." The *jinās* is unmistakable. The *'ābhōth* would inevitably suggest to the hearers *'ōbhōth*, which, like the jars are to be smashed to pieces (*nippeṣ*).

In this connexion it is strange that *BDB* should insist on translating *nēbhel* in three places (I S. i, 24; IX, 3; and II S. xvi, 1) by " skin-bottle," despite all the evidence for jars elsewhere. Lam. iv, 2, expressly says that the *nēbhel* is the work of the potter. There is no ground whatever for supposing that the *nēbhel* was a skin-bottle, and Koehler in his Lexicon wisely sticks to the meaning jars.

[1] *Illustrated London News*, March 29 and October 27, 1956. I am indebted to Prof. Mallowan for this reference and other information.

[2] *The Joshua Starr Memorial Volume* (New York, 1953), pp. 29–58.

To sum up: in effect as was said long ago in *BDB*, the rendering of *'ōbhōth* by " wine-skins " is based on nothing more than conjecture, while comparative philology requires an earthen vessel, and archaeology strongly supports the same.

TWO SEMITIC INSCRIPTIONS FROM MALTA

By A. M. Honeyman

The writer is indebted to Mr. C. G. Zammit, Director of the Antiquities Service of Malta and Curator of the Museum of Archaeology, Auberge de Provence, Valletta, for drawing his attention to the two inscriptions here published, for additional information and for permission to publish the second item.

1. Inscribed stone of unknown provenance in the private collection of Mr. Sammut, 77 Annunciation Street, Hamrun, reproduced in Plate XXI and published by kind permission of the owner. The stone measures about 40 in. by 16 in. by 16 in.; height of small letters –apart from the first—2½ in., and of letters with vertical prolongations 5in. The text is Phoenician.

שער עבדלאי

" Gate of 'Abdli'ay "

שער—" gate, gateway "; so in the Phoenician inscription of 132 A.C. from Umm al-'Awāmid (*C.I.S.* I, 7, 3).

עבדלאי—the name is familiar from Carthage about the second century A.C.[1] and—in the form עבדלא –from Elephantine in the fifth century A.C.[2]; also to be compared are *Ab-di-li-'-tu* of Arvad,[3] עבדלת at Constantine in Algeria,[4] and אמתלאי which appears somewhat enigmatically as the name transmitted by tradition for the mother of Abraham and again for the mother of Haman[5] in the Babylonian Talmud, Baba Bathra 91a. But the origin of the name has not been satisfactorily elucidated. The Corpus acknowledges " (cuius) etymon nobis incompertum "; Berger wishes to emend to עבדאלי,[6]

[1] *C.I.S.* I, 3914 (= *R.É.S.* 17), 7, *R.É.S.* 787 and possibly *C.I.S.* 1940, where the reading is uncertain.

[2] Lidzbarski, *Phönizische und Aramäische Krugaufschriften aus Elephantine* (= *Abhandlungen der Königlichen Preussischen Akademie der Wissenschaften, Jahrgang* 1912, *Anhang, Abhandlung I*), nos. 12, 29.

[3] The Taylor Prism of Sennacherib, II 49.

[4] Berthier and Charlier, *Le Sanctuaire Punique d'El-Hofra à Constantine* (1955), no. 172.

[5] The collocation of Haman and Abraham appears odd until it is remembered that the patriarch was designated אב המון גוים (Genesis xvii, 4, 5). The tradition is in any event an intriguing one, and no difficulty is solved by the textually violent proposal (*cf.* Kohler in *Jewish Encyclopaedia* I [1901], s.v. *Amiltai*) to replace אמתלאי by אמלתאי, i.e., Ἀμάλθεια, on whose appearance in the LXX of Job xlii, 14 see the writer's remarks in *Transactions of the Glasgow University Oriental Society*. 11 (1946), 51–2.

[6] *Comptes Rendus de l'Académie des Inscriptions et Belles Lettres*, 1907, 184.

and Clermont-Ganneau, with the approval of Lidzbarski,[1] regards the name as an abbreviation of עבדאלנם or the like. The *prima facie* appearance that the second element is from the root *l'y* is to be preferred. The root is that of Accadian *le'ū* "be strong, able, wise, capable"[2] and Ugaritic *l'y* "prevail".[3] Ugaritic affords a further illustration of the use of a word from this root as an epithet of deity in the title *ảliyn b'l*[4] in which we should probably see an elative form with *à* > *ì* in the presence of *y* and with the ending *-ān*.[5] Thus *'Abdli'ay* is " servant, worshipper of the potent, able (deity) ".

The stone on which the text is carved probably served as a lintel to the gateway to which it refers. The text has no dividing mark between the words.[6] Comparison with the other Phoenician inscriptions from Malta[7] is not particularly relevant in view of the monumental size and the roughness of the lettering in this text. Nor is the squat proportion and archaic shape of the initial *šin*, since the carving is rather amateurish and the first letter is perceptibly smaller than the others. The same lack of professional decisiveness is evident in the close similarity of *reš* and *dalet*, the latter actually having the longer limb. *Bet*, *dalet* and *reš* maintain the closed top, as is usual to the end of the Punic period except in some epigraphs from Cyprus.[8] The shape and stance of *bet* are not otherwise indicative. Of greater chronological significance are the virtually open top of *'ayin*, the detached condition—together with an unusual reversed slope—of the medial bar of the final *yod*[9] and the swelling and tapering of the main shafts of *'alef*, *dalet* and *reš* in a manner approximating to the elegance of the Gozo inscription (C.I.S. I,132). These features, which could hardly have been accidentally anticipated by

[1] *Cf. Ephemeris für Semitische Epigraphik* III, ii (1909), 56.

[2] Delitzsch, *Assyrisches Handwörterbuch* (1896), 364–5, Muss-Arnolt, *Concise Dictionary of the Assyrian Language* I (1905), 464, Bezold, *Babylonisch-Assyrisches Glossar* (1926), 155, Mullo Weir, *Lexicon of Accadian Prayers* (1934), 181.

[3] Gordon, *Ugaritic Manual* (1955), no. 997 of the Glossary.

[4] *I.e.* *'Al'iyān Ba'(a)l*, which Gaster appropriately renders " Baal Puissant " (*Thespis* [1950], 167, etc.).

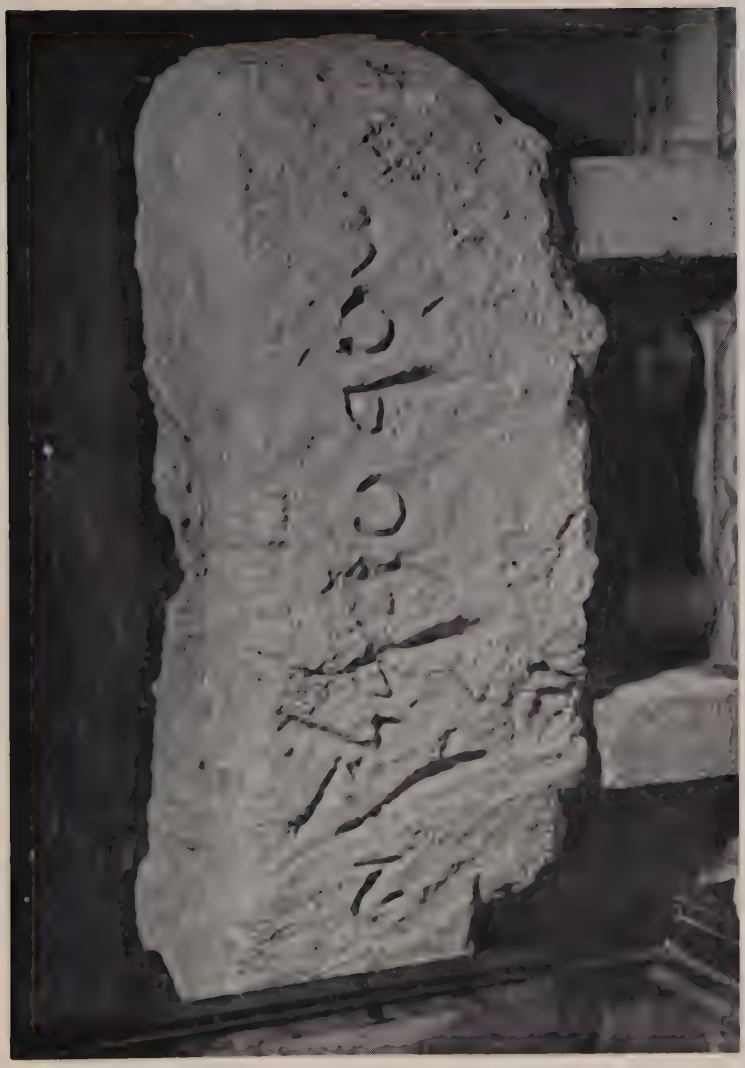
[5] Cf. Aistleitner, *Untersuchungen zur Grammatik des Ugaritischen* (= *Berichte über die Verhandlungen der Sächsischen Akademie der Wissenschaften zu Leipzig, Philologisch-Historische Klasse*, Band **100**, Heft 6 [1954]), 20. The same root occurs also in Hebrew and Arabic, but in the sense of " be wearied, tired, slow, distressed," from which it is to be inferred that the basic sense of the root was " exert oneself, put forth effort, exercise endeavour." My colleague Mr. M. A. Ghul draws attention to the use of *la'y*[an] in the Mu'allaqa of Zuhair, line 4, in the sense of " hardly, with difficulty " and to the very similar semantic development of the Arabic *jahada*. Lastly it may be remarked that the Phoenician and Ugaritic evidence greatly strengthens the case for regarding the name of the Biblical Leah as some sort of epithet, title or adjective of dignity rather than as having some zoological or totemistic reference.

[6] *Cf.* Lidzbarski, *Handbuch der Nordsemitischen Epigraphik* I (1898,) 202–3.

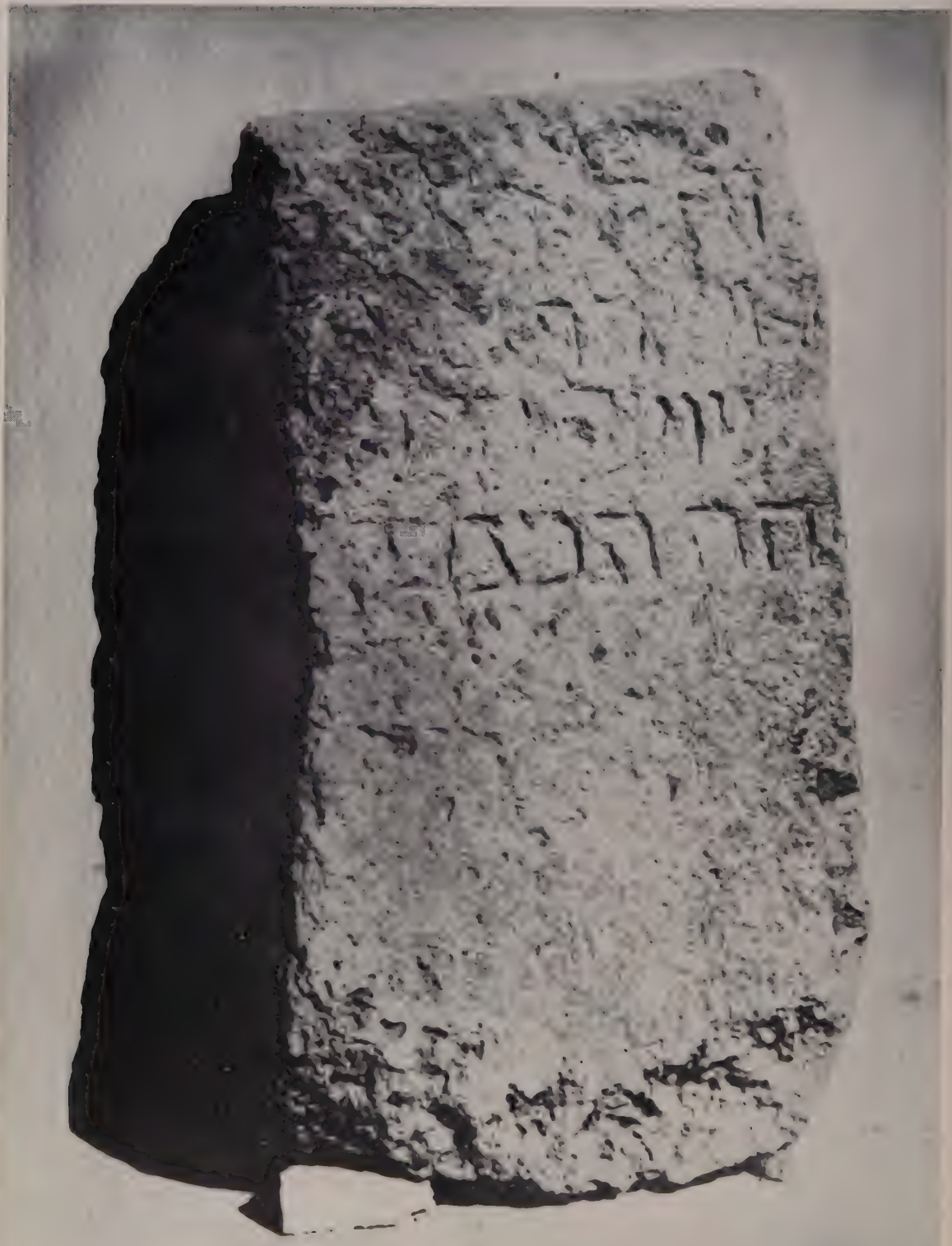
[7] *C.I.S.* I, 122-132.

[8] Lidzbarski, *op. cit.*, 179-180

[9] Lidzbarski, *op. cit.*, 178



INSCRIBED STONE FROM COLLECTION SAMMUT, 77 ANNUNCIATION STREET, HAMRUN, MALTA



Hebrew Tombstone, Museum of Roman Antiquities, Rabat, Malta

Hebrew Inscription from Rabat, Malta.
Photograph of Squeeze.

a lay carver, suggest that the text should be assigned to a date between the second and fourth centuries A.C.

2. Hebrew tombstone in the Museum of Roman Antiquities at Rabat. The inscribed area, which occupies the upper half of the face of the stone, measures approximately 60 cm. square; the thickness of the stone, which is only roughly dressed, is not much less than its breadth. Height of letters 9 cm. Although the letters are deeply incised, the stone, particularly in its upper part, is so eroded that only two complete words and the initials of the final formula remain; the text area as preserved is complete (see Plate XXII).

זה הו קבר של 1.
מר[ת] רח[ל חברת 2.
ישוע ה[3.
חה תנצבה 4.

1. " This is the [tomb of]
2. the lady Rach[el, spouse of)
3. Yeshu'a the . . .
4. . . . May her soul be bound up in the bundle of life!"

1. The restoration is plausible but conjectural, and various synonyms are possible; *cf.* for example Cantera y Millás, *Las Inscripciones Hebraicas de España* (1956), *Parte primera*, passim.

2. The sex of the deceased is inferred from the presence of a space for one letter after מר, together with the limited choice of possibilities afforded by the two following letters. For the restoration חברת or אשת *cf.* Cantera y Millás, *op. cit.*; the space is greater than would be required by בת.

3. The letter after *he* may be a *ḥet*, in which case the line may be completed as החכם. Alternatively the letters may represent the beginning of some formula referring to Yeshu'a.

4. The possibility of completing חה as חה(רוח י" תני) seems to be excluded by the fact that no other word overruns the end of a line, by the grammatical improbability of the form תניחה and by the presence of the standard formula at the end of the line in reference to Rachel. The letters may stand for חסידי הדור in a benedictory formula for Yeshu'a.

תנצבה—These *raše tebot* form a standard funerary benediction based on I Samuel xxv, 29, and attested from the twelfth century of the Common Era onwards (Zunz, *Zur Geschichte und Literatur* [1845], 350-2).

The writer knows of no other Hebrew epigraphs from Malta; *cf.* Steinschneider, *Allgemeine Einleitung in die Jüdische Literatur des Mittelalters* ([1901] 1938), 131—7. The palaeography affords no decisive evidence of date.

REVIEWS AND NOTICES

The James A. de Rothschild Expedition at Hazor. *Hazor II.* An account of the second season of excavations, 1956. By Y. Yadin, Y. Aharoni, R. Amiran, T. Dothan, I. Dunayevsky, J. Perrot. Magnes Press, The Hebrew University, Jerusalem, 1960. Pp. 174. 210 Plates. 178s. 6d.

Two years after the publication of the first factual report on Hazor, the second instalment appeared with commendable promptitude during 1960. Third and fourth volumes are promised, and as the story of the excavation unfolds, the reader is able to share in the discussions, follow the arguments and weigh up the evidence provided by the same distinguished excavators. The Hazor dig is perhaps the first enterprise in which so large a group of experienced field archaeologists have worked together year by year; every point at issue is closely debated, and the minority view is always stated whenever differences in interpretation arise. This healthy trend encourages balanced judgment and avoids personal prejudice.

On the results of the first year, it was possible to interpret with more confidence the complicated occupational phases which recur in different areas, and there is great improvement in the preparation of the text, which has been more carefully proof-read than before. Wide margins and few drawings on each plate make the Hazor publications more bulky than they need be, and with the increased number of pages and plates in Volume II the maximum in size has perhaps been reached, but who will complain when there is such a wealth of information inside?

Work was resumed on the centre and on the west side of the citadel or acropolis (Areas A and B).[1] The Casemate City Wall was examined for about 50 metres of its length, and its similarity to the Casemate Walls of Beth Shemesh, Gezer, Tell Beit Mirsim and Ramat Rahel was established. To this list of parallels should be added the fortress wall at 'Ain el-Quderat[2] and other walls constructed in like manner on the Darb esh-Shur.[3] The excavators of Hazor are convinced that their wall of Stratum X was part of the fortification system planned by Solomon (I Kings, ix, 15). They have shown that the same wall continued as a defence during Stratum IX, and that the spaces between the walls became store-rooms during Stratum VIII. In later

[1] For a review of *Hazor I*, see P.E.Q., **91** (1959), pp. 67–71, also **92** (1960), pp. 90–105.

[2] C. L. Woolley and T. E. Lawrence, *The Wilderness of Zin* (1915), pp. 81–84, Fig. 8.

[3] For recent observations on El-Quderat ('Ain el-Quderat), see B. Rothenberg, *God's Wilderness* (1961), pp. 122–125.

times, the ruined wall formed the boundary to a district of private houses. Designed to a common plan, this type of fortification is now seen to cover at least three centuries, 10th–8th, and to extend geographically from Israel to Judah and to the southern border of the land.

Within the line of the Casemate Wall, at a time when it was no longer used as a defence, a great Pillared Building was erected, which was fully exposed in its earliest phase during 1956. The excavators consider that it was a royal storehouse, but they are still facing the question: " Why were rows of pillars built instead of walls?" The answer will surely be found in some practical function in connection with earthquake perhaps, or with the provision of ventilation in the upper part. It may ultimately be solved by a study of the building methods in the Neo-Phoenician colonies,where squared pillars are placed header and stretcher fashion between alternate sections of rubble wall. Stratum VIII, like IX, was destroyed by fire, and consequently the pottery of the final phase was abundant, and finds parallels at Tell el-Far'ah (N), " Intermediate Stratum "; at Megiddo, Strata V-IV, and at Samaria, Stratum III. Among the domestic forms are " three-legged bowls " (Pl. LIV 20-22), which are prototypes, as the excavators suggest, of the " strainer bowls " (Pl. LV 43, 44). Should they not both be classed as censers?[1]

With regard to a more common and significant form, the decanter; examples are said to occur first in Stratum VII (*Hazor I*, p. 20, and *II*, p. 18). However, there are several fragmentary vessels attributed to Stratum VIII, which seem to belong to this class, though it is possible that their attribution is in doubt. It is between Strata VIII and VII that changes take place in the ceramic repertory, at the same time that the main buildings loose their official character.

Strata IX, VIII, VII and V were destroyed by fire, and the end of Stratum VI was no less violent, for the excavators see the traces of earthquake in leaning walls and fallen ceilings, and recall references to a severe disaster of this kind in the reign of Uzziah (Zechariah xiv, 5 and Amos i, 1), which can be dated to about 760 B.C. The excavators note " a new phenomenon " in the pottery of Stratum VI, " bowls with a thickened rim sometimes wavy or grooved and usually with a reddish-brown interior slip, rarely or poorly burnished " (p. 26 and Pl. LXVI: 20–33). This is the type which begins also at Lachish in the top levels of the 8th century Tomb 1002 (L.III, Pl. 80: 75), and at Samaria in Stratum VI.[2]

[1] See Grace M. Crowfoot in *P.E.Q.*, **72** (1940), pp. 150–153, where she drew attention to the similar modern " cup " censers from the Greek Islands, Cyprus and Rhodes. Their use in the E. Mediterranean is mainly for censing in houses, especially after death. In Tunisia, such forms are made in the modern pottery of Nabeul, and are used in the homes, as they are also in southern Arabia. It is perhaps surprising that similar vessels were not known to Mrs. Crowfoot from her study of village crafts in Palestine, where they seem to have died out.

[2] *P.E.Q.* **91** (1959), pp. 98ff.

No later structures were apparently built in Area A after the 732 B.C. destruction by Tiglath-Pileser III (Stratum V), and about this time, possibly in view of the Assyrian menace, the Citadel on the west corner of the acropolis (Area B) which had stood almost unchanged since it was built in Stratum VIII on the filled-in Casemate Wall of Stratum X, was re-fortified by the addition of a recessed stone wall, 4·50 metres in average width. It was flanked on the north-east by an isolated bastion, reminiscent of the isolated tower shown on the Lachish Relief. The recessed wall is comparable in average width to the brick wall of Level V–III at that site, and many shared details of domestic and industrial life show that north and south were culturally one, despite the division of the monarchy. The same conclusions apply to the Hebrew inscriptions, consisting mainly of personal names; they are important because they include four sherds definitely attributable to the 9th century B.C., and the Table printed in Fig. 4, p. 75 adds significantly to knowledge of the development of the Hebrew script.

In the Lower Canaanite City, the Hazor expedition has scored an epigraphic " first " by the discovery in Area C of an MB II jug bearing an inscription in Akkadian cuneiform writing. A unique cultic standard of the snake goddess came from the shrine, which will be the subject of much learned discussion in the future, and nearby in a room which bore every sign of use as a potter's workshop was a cult mask of pottery. The excavations of 1956 correlated the relationship between the LB II strata of the shrine and the occupation levels in the built-up area, and clarified the character of the underlying remains. Particularly interesting is the excavators' conclusion that the Earthen Rampart enclosing the Lower City was most probably built in the earlier phase of that occupation (i.e. in Stratum IV). Much the same results were obtained in the newly-opened Area F on the eastern side of the enclosure. Here again, it appears that some form of cult was practised in an open area at the same time that the Shrine was frequented on the west side. The final LB II phases of occupation in Area F are discussed in this report, whilst the account of the mysterious subterranean halls, the palace of MB II and the burials of LB I is to follow in forthcoming volumes.

There is much of interest in the LB II material, divided into two building phases, IB and IA. No difference was discernible between the local pottery on the house floors, when IB ended and the makeshift rehabilitation which followed, and it is all the more important therefore to find the whole period of occupation of Stratum IB represented by over five hundred vessels deposited in two tombs (T.8144–5 and 8065). The imported pottery found in them consists mainly of Base-ring and Mycenaean wares. There are close parallels with the Cypriote repertory and with the Lachish series for the Base-ring forms, and the presence of a scarab of Thutmose IV (*c.* 1421–1413 B.C.) is an appropriate discovery in the context. However, the full range and duration of the group cannot be assessed by the reader, because less than half the vessels from these tombs are illustrated, and there is no tabulation to show

the relative frequency of the various types. For instance, there is a reference to the " handsome group of local vessels, imitations of the ' Bilbil ' jugs " (Base-ring II), and on the plates only three incomplete examples are shown (p. 148 and Pl. CXXXIV: 1–3). This question of frequency and overlap of types cannot be overestimated, and it appears from a remark on p. 88 concerning the handles of MB juglets that the progression of forms through a period of overlap is not accepted as the normal course by the Hazor team.

The contents of the tombs and consequently the duration of City IB with which they are associated, determines for the first time the identification of that level with the town of the Amarna period, when it is known from the letters that Hazor was an important Canaanite centre. In Dr. Yadin's opinion, IB was destroyed about 1300 B.C., after a full century of existence, by Seti I, who lists Hazor among his conquests (*Hazor I*, p. 4 and note 11), and IA came to an end in the " second third of the thirteenth century." An attractive alternative is that IB fell to the general Hor-em-heb who later became pharaoh (1349–1319 B.C.),[1] and that IA was destroyed by Seti I, a conclusion which would be supported by the evidence on the ground that City IA was rebuilt soon after the destruction of its predecessor and was only briefly occupied. The observation is based on the absence of repairs and of raised floor levels and the damaged house plans suggest to the excavators that the remains of the Lower Canaanite City lay exposed for a long period, subject to erosion and the action of the plough.

After two centuries of conflict, the Egyptian and Hittite Empires were at peace from about 1280 B.C., and men and women " could reach the land of Hatti without fear around about their hearts," and this unusual state of things seems to have continued until the death of Ramses II, *c.* 1234 B.C. In the account of Joshua's destruction of northern tells, it is said that " Israel burned none of them, save Hazor only " (Joshua xi, 10–13), and yet there is apparently no trace of a great conflagration in the Lower City, such as destroyed the main Bronze Age cities of Judah. At Hazor, of all places, one would hope to find this confirmation of the scriptures, if the destruction of City IA were related to the Israelite Conquest, as Dr. Yadin implies (p. 160). But until the fate of the Bronze Age acropolis is known, it is useless to theorize, and the next two instalments of this notable serial will supply the known facts, even if the excavations of the past years at Hazor leave the crucial question of the date of the end of the Bronze Age still unsolved. Judging from the past record of the Hazor team, it will not be long before the evidence is presented

[1] According to his own records, Hor-em-heb was an active commander in the north, but doubts have been expressed about the authenticity of these campaigns (*A.N.E.T.*, p. 250). Since a scarab of this king and his immediate predecessor have been found in Palestine there is at least evidence of their influence in the area (*Lachish* IV, p. 97 and Pl. 39: 351, 357).

in full, and students of the Bible, archaeologists and epigraphists will all reap the benefits of a great work most conscientiously performed.

OLGA TUFNELL

God's Wilderness. Discoveries in Sinai. By Beno Rothenberg in collaboration with Y. Aharoni and A. Hashimshoni. Translated from the Hebrew by Joseph Witriol. Thames and Hudson, London, 1961. Pp. 196. 90 plates, 16 illustrations in text. 63*s*.

There have been two World Wars since Woolley and Lawrence made their journey across the Negeb by camel in the first months of 1914, traversing part of the way trodden by Wilson, Hull and Palmer, all at the instigation of the P.E.F. It was in the wake of a military advance between October 1956 and January 1957 that the authors of this book took the opportunity, like thousands of Israeli youth, to sweep into the Peninsula of Sinai by car, jeep and plane. *God's Wilderness* is one of the few pleasant results of the Suez crisis, for it develops a new trend in archaeological literature which has lain dormant since the P.E.F. Annual III was republished as *The Wilderness of Zin* in 1918. Its lineal successor now under review is 12 × 9, a size peculiar to the publisher, which is suitable for the fine illustrations, often occupying the whole page, and interleaved between sections of text printed on buff paper. The book appeals to the eye and gives a feeling of space with its wide margins and clear type, wholly appropriate to the subject. Rothenberg's camera evokes more than an archaeological record; it reflects the cool light of dawn and registers the blistering heat of noon on rock and soil. It sees living Beduin at rest, like the dead monks within St. Catherine's monastery, which is strikingly portrayed.

The text divides into two main parts; Rothenberg's *Sinai Notebook* and Aharoni's *Kadesh-Barnea and Mt. Sinai*, followed by a short account of *Jeziret Fara'un* (El-Qureiye) by Hashimshoni, an island which the expedition now identifies with the classical Jotabe in the Gulf of Aqabah, where there was a Jewish settlement until the 6th century A.D.

Rothenberg and Aharoni agree with the view expressed by Lawrence that the whole region of El-Qusaima—'Ain el-Qudeirat—'Ain Qadeis must be held to constitute Kadesh Barnea, but on the other hand they consider that many of his "early graves" were, in fact, Canaanite dwelling-places with courtyards attached, and that his "houses" were large Byzantine burial-places. Not a trace remained of excavations made by Lawrence on the tell in Wadi el-'Ain, though the walls of the 8th-6th century building on top—now the classic example of an Israelite fortress—are still visible. They report differently from the earlier authors on the prevalence of flint implements in Sinai; Woolley and Lawrence searched the whole face of the country and found very few, though the land is a land of flints which might well be mistaken for results of human industry, and they did in fact succeed in

deceiving several good authorities with them on their return to England. The present authors and their companions, however, collected " a great pile of Upper Palaeolithic flint implements " in one spot, of " marvellously accurate craftsmanship ", which have since been re-examined by M. Jean Perrot. Rothenberg considers that Negeb and Sinai were in general treasure-houses of prehistoric implements. It would have been good to see a sample of their finds in photograph, while awaiting the full report; meanwhile, the decision rests in the balance (cf. pp. 12, 15, with *Zin*, pp. 37-8).

Whilst Rothenberg retraces the recent steps of Lawrence and Woolley, Aharoni attempts to follow the faint trail of the Children of Israel on their wanderings, and personal observation leads him to make some interesting suggestions on " the most difficult problem of Palestinian Biblical topography ". Though Rothenberg quotes the works of earlier authorities in his area, Aharoni pays only a general tribute to the pioneers in Sinai. Had he referred to them more freely, he would in summarizing their results have presented a fuller picture, and done much to strengthen his own case, particularly for the identity of Mt. Serbal with the Mountain of the Law, variously known in the Bible as Mt. Horeb-Sinai-Paran. All research in the peninsula is rewarding to the explorers, and in lesser degree to those who cannot see this wild country for themselves, but their knowledge will be increased by this account, and their interest sustained by the beauty of the illustrations and the excellence of the English translation.

OLGA TUFNELL

Eretz-Israel. Archaeological, Historical and Geographical Studies. Volume VI. Dedicated to the Memory of Mordecai Narkiss (1897–1957). Edited by M. Avi-Yonah, H. Z. Hirschberg, K. Katz, B. Mazar and B. Narkiss. Jerusalem, 1960. Published by the Israel Exploration Society and the Bezalel National Museum with the Assistance of the Bialik Institute of the Jewish Agency. Pp. 200 (Hebrew) + 40 (English); plates xlvi.

This volume is one of the now well known series published annually by the Israel Exploration Society. It is dedicated to the memory of M. Narkiss who laboured ceaselessly for the cause of the ingathering and better understanding of Jewish Art, and to whose indefatigable efforts Jerusalem's Bezalel Museum owes the unique character of its collection of Jewish religious and secular art from many lands, both eastern and western. In agreement with the widely spread interests of the man to whose memory it is dedicated, this book (which includes seven papers by various learned authors in its short French and English section, and no less than 29 papers in its Hebrew part) covers a great deal of varied ground. In addition to essays dealing with the life of Narkiss and a bibliography of his writings there are papers in such fields as anthropology, archaeology, history, numismatics, epigraphy as well as others dealing with both the arts and crafts of the Jews, and non-Jewish

art dealing with Jewish subjects. The period of time covered similarly extends from the Mesolithic to modern times.

As one by now expects from volumes in this series, the general level both of the papers included and of the illustrations accompanying them is high; some of the Hebrew papers have already appeared in an English translation and this would be desirable in the case of a number of the others as well. To give a detailed appreciation of all that is offered here cannot be attempted in a short review. Some of the papers contained in this volume, like D. Ferembach's note on two skulls from a tomb of the Roman period in Jerusalem, or T. Dothan's valuable essay on spinning bowls will be important for the archaeological specialist; no less than others to the specialist in the field of Hebrew arts and crafts. Three papers in the Hebrew section deal with Hebrew coins, and among these the first by L. Kadman in particular offers a valuable analysis of the types of scripts used on Jewish coins from the Hasmoneans to Bar-kochba. Papers like M. Avi-Yonah's discussion of the richly decorated mosaic floor of the Byzantine synagogue from Maon (Nirim) will be of interest to many, in view of the light it sheds on the relations between Jewish and Christian mosaic art at this period. A fairly detailed study of I. Ben-Zevi on the Origins of the Settlement of Jewish Tribes in Arabia gathers a wealth of information from many quarters and makes stimulating reading; not all his conclusions may finally be accepted, but his hypothesis that the Book of Job originated in the milieu of the Jewish diaspora in Arabia during the time of Neo-Babylonian rule there will be of considerable interest to Old Testament scholars, and the reviewer has been suggesting similar ideas in class for some years. M. Barash's paper on Rembrandt's representation of Jews is similarly an extremely lively and interesting study. Altogether this volume will offer something to many. There is no index, but there are short English summaries of the papers contained in the Hebrew section.

B. S. J. Isserlin

In *Expedition* (Bulletin of the University Museum of the University of Pennsylvania, **3**, No. 2, 1961, pp. 31–36) Mrs. Frances W. James gives an interesting illustrated account of the results of the work of the University Museum's expeditions at Beth-Shan (" House of the Serpent ") based largely on the published reports of the successive excavators of the site, namely C. S. Fisher (1921–1923), Alan Rowe (1925–1928), and G. M. FitzGerald (1930–1933). A bibliography of the reports in question is given by me in *P.E.Q.* **86** (1954), p. 80, followed by details of rectifications of the dates of certain tell-levels in *P.E.Q.*, **87** (1955), p. 179. The photographs accompanying the account are not so representative of the most important finds as perhaps they could have been. For instance, there is no picture of that finest masterpiece of art ever brought to light in Canaan, that is to say the large basalt panel (orthostat) showing the god Nergal (?) in the form of a lion fighting with the mythological temple-guardian in the form of a mastiff; also, not

even a picture appears of the interesting Egyptian limestone stela of the hitherto unknown local deity "Mekal[1] ('The Fierce Devourer'?—cf. the above-mentioned lion), the [great] god, the lord of Beth-Shan." (Seeing that casts of both these monuments are in the University Museum, some notice of them would have been well justified.) The stela itself was made for the builder Amen-em-Ipt ("Amen is in Luxor") by his son Pa-Ra-em-heb ("Ra is in Festive Mood"). The name of the father (= Gr. Amenophis) is equivalent to the *Amanappa* of the Tell el-'Amarna tablets, while a name resembling that of his son is thought to be represented by the later *Pariamaḫû*, the "Babylonian" form of the name of the Egyptian sent by Rameses II to Kurunta, the king of Tarḫuntaš, Boghazköï. Cf. H. Ranke, *Die ägyptischen Personennamen*, 1935, pp. 27 (No. 18), 114 (No. 13); also K. L. Tallqvist, *Assyrian Personal Names*, 1918, pp. 20, 180. Both the basalt panel, believed to be an importation from Syria, and the limestone stela were unearthed by myself in the temple of Level IX. (Although the pottery from Level IX dates from the fourteenth century, it is suggested by W. F. Albright, *The Archaeology of Palestine*, 1960, pp. 98, 100, that the foundation of the level itself probably belongs to the fifteenth century B.C.—perhaps actually to the reign of Tuthmosis III (?), the conqueror of Beth-Shan. Mrs. James states that Level X, below IX, appears to date not later than *c.* 1600 B.C. and is probably earlier.) Although the following details are outside the scope of this account I should like to refer to the important sixth century monastery discovered by Mr. FitzGerald in the Beth-Shan necropolis in 1930 and to his clearing of the lower levels of the mound. Incidentally, in the historical article of M. E. Kirk, in *P.E.Q.*, **75** (1943), pp. 34 ff., the name of the Beth-Shan deity wrongly appears as *Merkal*.

ALAN ROWE

Essays on the Dead Sea Scrolls. In Memory of E. L. Sukenik. Edited by C. Rabin and Y. Yadin, assisted by J. Licht. Hekhal Ha-Sefer, Jerusalem, Israel. 1961. Pp. 239 [Hebrew] + 8 [English].

This memorial contains eleven essays in Hebrew, four of which (by N. Avigad, M. H. Segal, S. Talmon and Y. Yadin) appeared in English in *Scripta Hierosolymitana* IV (see *P.E.Q.*, **91**, 1959, pp. 2 f.). Most of the others are briefly summarized in English at the end of the volume.

Two essays deal with the *Rule of War*. J. M. Grintz discusses its date, and assigns it to the period of the Roman procurators; it reflects the outlook of a group like the body of malignant charlatans described by Josephus in *B.J.* ii, 13.4, who led the populace into the desert during the procuratorship of Felix, on the pretext that God would there show them signs of the approaching liberation. C. Rabin analyses the *Rule of War* and finds in it three separate

[1] For Mekal and Nergal cf. *P.E.Q.* **60** (1928), pp. 79 ff., **61** (1929), pp. 87 ff. The former reminds us of Michal, daughter of Saul and wife of David (1 Sam.xviii, 27).

works, which he entitles (1) " The Book of the War " (cols. 1–9), (2) " The Book of God's Time " (cols. 10–14), (3) " The Book of Victory " (col. 14, line 16, to the end of the scroll).

J. Licht, writing on " The Plant Eternal and the People of Divine Deliverance," distinguishes between two trends in Qumran eschatology—one which restricts final deliverance to members of the community, and one which extends it to include the purified rank and file of Israel.

Hans Kosmala writes on a section of the *Zadokite Work* (p. 7, lines 9–21), in which he finds a piece of biblical exegesis which he considers an important source for the basic elements of Qumran doctrine. D. S. Loewinger studies " Remains of a Hebrew Dialect in IQ Is.a "; J. Finkel argues that " The Author of the Genesis Apocryphon knew the Book of Esther "; and D. Flusser undertakes a comparative examination of " The Baptism of John and the Dead Sea Sect," and finds that John's baptismal theology was very like that of Qumran, but lacked the exclusiveness of the latter.

F.F.B.

ANNUAL GENERAL MEETING, 1961

The 95th Annual General Meeting of the Palestine Exploration Fund was held at 2 Hinde Street, Manchester Square, London, W.1, on Thursday, June 29, 1961, at 5.15 p.m. (Canon C. B. Mortlock in the Chair).

1. The Minutes of the 94th Annual General Meeting were read, approved and signed.

2. The Chairman's Report. Under the will of Lady Watson, the Fund was due to receive half the proceeds from the sale of a house in Jerusalem. The sum was expected to be in the region of £10,000.

Plans were already under way for an Exhibition in 1965 to mark the centenary of the Fund. It was hoped to hold the Exhibition in the British Museum and afterwards, possibly, to send it on tour. Miss Tufnell, with the help of a working party, was busy sorting out the many relics of the work of the Fund through the years, and these included potsherds found by T. E. Lawrence and C. L. Woolley. The Committee wished to record their thanks to Mr. and Mrs. Conway, Mrs. Tessa Lloyd, Mrs. Philiss Rankin and Mr. and Mrs. Seale for the work they had done.

Miss du Plat Taylor had also put in a lot of work in the library and a number of runs of journals and magazines had been sold for a good price. Sales of the P.E.F. and B.S.A.J. publications had amounted to £769 since the last A.G.M.

Due to the initiative of Miss Tufnell, a series of lectures on the Natural Sciences and the Bible had been held during the autumn and a joint lecture had been held with the Institute of Archaeology to hear Miss Diana Kirkbride on " Two Seasons' Archaeological Research in S. Transjordan."

During the past year the Fund had lost 20 members by death or resignation, and had gained 40 new members. Membership now stood at 264 individual members and 300 Libraries and Institutes.

3. The Hon. Treasurer's Report. The Treasurer referred to the Statement which had been circulated to all members. The Fund had earned an excess of £423 income over expenditure. An amount had been spent on urgent repairs to the building. Out of the £400 surplus, he proposed to transfer £200 to the research account, and from this account to contribute £350 towards the costs of the first season's excavations at Jerusalem, and £50 towards Miss Kirkbride's excavations at Beidha, leaving a balance of £300 for future use.

£200 had been transferred to the Maintenance Account of which £150 had been spent on a complete survey of 2 Hinde Street. £549 remained in

the Maintenance Fund. The Treasurer moved the adoption of the Accounts; the motion was seconded by Dr. Diringer and approved by the meeting.

4. The Editor's Report on the Quarterly. Professor Bruce wished to record his thanks to all those who had contributed articles and reviews during the past year. He apologized for the late publication of some issues, owing to the fact that many of the best contributions came from abroad entailing much posting to and fro of proofs.

The Chairman proposed that the meeting record their gratitude to Professor Bruce for a first-rate professional production, which was accorded by all present.

5. Election of Officers. The Secretary stated that the Chairman and members of the Executive Committee were willing to allow their names to be put forward for re-election. It was further proposed that Professor Peter Ackroyd be elected a member of the Committee. The proposals were put to the meeting, seconded by Dr. Diringer and passed unanimously.

It was proposed that the Auditors, Messrs. Turquand Youngs, continue to serve in that capacity for a further year. The proposal was seconded by Dr. Waechter and passed unanimously.

There being no further business, the meeting closed.

The Annual Lecture was then delivered by Dr. Hugo Buchthal, F.B.A., F.S.A., on " Miniature Painting in the Latin Kingdom of Jerusalem ".

At the close of the lecture Mr. G. M. FitzGerald proposed a vote of thanks to the lecturer, which was accorded with enthusiasm.

The Committee have to acknowledge with thanks the following:—

How Came Our Faith, by W. A. L. Elmslie. Presented by the Author.

Adam to Daniel, edited by Gaalyahu Cornfeld. Presented by the Editor.

A Decade of Archaeology in Israel 1948–1958.

Al Machriq. Vol. LV, Nos. 1, 2 and 3, 1961.

American Journal of Archaeology. Vol. 65, Nos. 2 and 3, 1961.

American Journal of Philology. Vol. LXXXII, Nos. 1 and 2, 1961.

Annales Archéologique de Syrie. Vols. VI, VII and X.

Annual of the British School at Athens. No. 55, 1960.

Annual Report, Royal Ontario Museum. No. 10, July 1959–June 1960.

Antiquaries Journal. Vol. XLI, Nos. 1 and 2, 1961.

Biblical Archaeologist. Vol. XXIV, Nos. 1, 2 and 3, 1961.

Biblica. Vol. 42, Nos. 1 and 2, 1961.

Bulletin of the American Schools of Oriental Research. No. 160, 1960. Nos. 161 and 162, 1961.

Bulletin of the Department of Archaeology, Hebrew University. No. III, 1960.

Bulletin of the Israel Exploration Society. Vol. 25, No. 3, 1961.

Bulletin of the University Museum, University of Pennsylvania. Vol. 3, Nos. 3 and 4, 1961.

Byzantinoslavica. Vol. XXII, No. 1, 1961.

Estudios. No. 2.

Expository Times. Vol. LXXII, Nos. 7 to 12, 1961. Vol. LXXIII, No. 1, 1961.

First Preliminary Report on the Excavations at Tel "Gat" 1956–1958.

Harvard Theological Review. Vol. LIV, Nos. 2 and 3, 1961.

Internationale Zeitschriftenschau für Bibelwissenschaft und Grenzgebiete. Vol. VII, Nos. 1–2, 1960/1961.

Jewish Quarterly Review. Vol. L, No. 4, 1960. Vol. LI, Nos. 3 and 4, 1961.

Journal of the American Oriental Society. Vol. 80, Nos. 3 and 4, 1960. Vol. 81, Nos. 1 and 2, 1961.

Journal of the Israel Exploration Society. Vol. 10, No. 4, 1960. Vol. 11, No. 1–2, 1961.

Journal of the Royal Anthropological Institute. Vol. 91, Part I, 1961.

Journal of Semitic Studies. Vol. VI, No. 1, 1961.

Le Judaisme Sephardi. No. 21.

Nea Zion. 1961.

New Testament Abstracts. Vol. 5, No. 3, 1961.

Nouvelle Revue Théologique. Vol. 83, Nos. 3 to 8, 1961.

Religious and Theological Abstracts. Vol. IV, No. 2, 1961.

Revue Biblique. No. 2, 1961.

Scripture. Vol. XIII, Nos. 21, 22, 23 and 24.

State of Israel. Hydrological Paper No. 7.

Studies on the Books of Samuel.

Syria. Vol. XXXVIII. Nos. 1 and 2, 1961.

The Ancient Synagogue of Ma'on (Nirim).

Zeitschrift des Deutschen Palästina-Vereins.

1959 £		£ s. d.	£ s. d.
	Capital:		
	Authorised 200 Shares of £1 each	200 0 0	
—	Issued—9 Shares of £1 each, not called ..		—
	Surplus of Assets over Liabilities:		
	(Excluding donated property)		
3,098	Amount as at 31st December, 1959	3,290 17 5	
	Add: Excess of Income over Expenditure for		
1,443	year	423 16 8	
4,541		3,714 14 1	
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750	Transfer to Research Account	200 0 0	
500	Transfer to Maintenance Fund	200 0 0	
		400 0 0	
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	Research Account:		
150	Balance as at 31st December, 1959	500 0 0	
	Transfer from Surplus of Assets over Liabilities	200 0 0	
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900		700 0 0	
	Less:		
	Provision for proposed contribution to publication		
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	Provision for Grant towards Excavation at		
300	Petra and Beidha ..	50 0 0	
—	Jerusalem	350 0 0	
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500			300 0 0
	Maintenance Fund:		
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302	Sundry Creditors for Current Expenses ..	602 8 5	
124	Subscriptions in advance	97 1 0	
1,176			1,199 9 5
£5,467			£5,363 18 10

1959 £		£ s. d.	£ s. d.
	Fixed Assets:		
	Freehold Property—Donated:		
	No. 2, Hinde Street (estimated value		
—	£5,000)		—
	Alterations and Improvements:		
	No. 2, Hinde Street at net book value,		
1,189	1st July, 1948		1,188 17 5
	Museum, Library and Storeroom, Fixtures and Fittings, Furniture, etc., at net book		
382	value, 1st July, 1948		382 2 7
	Typewriter at cost	68 10 0	
	Less: Depreciation to date	14 10 0	
61			54 0 0
	Projector at cost	41 13 0	
	Less: Depreciation to date	16 13 0	
29			25 0 0
	Otzar Hityashouth Hayehudim B. M. Israeli £250 Ordinary Stock (Registered)		
—	Donated		—
	Jewish Colonial Trust—Donated—50 Ordinary Shares of 2s. 6d. each, fully paid ..		
—			—
1,661			1,650 0 0
	Current Assets:		
	Investments, at cost or under—		
	£374 12s. 0d. 3½% Conversion Loan 1961 or after ..	300 0 0	
	£50 0s. 0d. 3% Savings Bonds 1955/65	50 0 0	
	£264 1s. 8d. 2½% Savings Bonds 1964/67	250 0 0	
	£300 0s. 0d. 3½% Defence Bonds	300 0 0	
900		900 0 0	
	Market Value £790 (1959 £816)		
148	Sundry Debtors	381 7 5	
1,628	Cash at Bank on Current Account and in hand	1,301 15 3	
1,101	Cash at Bank on Deposit Account	1,101 0 0	
29	Cash on Deposit—Post Office Savings Bank ..	29 16 2	
			3,713 18 10

NOTES:—

1. £105 has been included in Salaries in respect of remuneration to a member of the executive committee.
2. Work outstanding on the Samaria-Sebaste £185 for which no provision has been made in the accounts.

Chairman.
Hon. Treasurer.

£5,467 £5,363 18 10

AUDITORS' REPORT TO THE MEMBERS OF THE PALESTINE EXPLORATION FUND.

We have examined the above Balance Sheet and annexed Income and Expenditure Account which are in agreement with the books of account and have obtained all the information and explanations which we considered necessary for our audit. In our opinion, proper books of account have been kept.

In our opinion and to the best of our information and according to the explanations given to us the said accounts, read in conjunction with the notes, comply with the requirements of the Companies Act, 1948, and give a true and fair view of the state of the Fund's affairs at 31st December, 1960, and of the excess of Income over Expenditure for the year ended on that date.

19, Coleman Street, London, E.C.2.

TURQUAND, YOUNGS & CO.,
Chartered Accountants.

THE PALESTINE EXPLORATION FUND

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st DECEMBER, 1960

1959								
£		£	s.	d.	£	s.	d.	
653	Printing—Quarterly	995	14	5				
100	Miscellaneous	77	6	3				
					1,073	0	8	
(60)	*Less:* Contribution by British School of Archaeology in Jerusalem				65	0	0	
693								1,008 0 8
610	Salaries, Wages and Pensions (see Note 1) ..							634 9 3
15	Repairs and Maintenance							300 15 9
26	Insurance				25	19	6	
—	*Less:* Two years agency commission on premiums paid				7	15	4	
								18 4 2
79	Rates							80 17 2
49	Light, Heat and Cleaning							103 0 5
86	Postage and Telephone							99 18 5
45	Stationery and Sundries							35 9 5
11	Audit Fee							10 10 0
6	Depreciation on Typewriter							7 0 0
4	Depreciation on Projector							4 0 0
—	Retirement Gift to Assistant Secretary							50 0 0
1,443	Balance, being excess of Income over Expenditure							423 16 8
£3,067								£2,776 1 11

1959								
£		£	s.	d.	£	s.	d.	
889	Subscriptions and Donations including local societies							802 5 7
250	British Academy Grant							150 0 0
145 (2 yrs.)	Refund of Income Tax on Covenanted Subscriptions							60 5 3
1,007	Sales of Publications							966 19 8
725	Rents							725 0 0
	Dividends Received—Gross:							
	On £374 12s. 0d. 3½% Conversion Loan ..	13	2	2				
	On £50 0s. 0d. 3% Savings Bonds 1955/65 ..	1	10	0				
	On £264 1s. 8d. 2½% Savings Bonds 1964/67	6	12	0				
	On £300 0s. 0d. 3½% Defence Bonds ..	10	10	0				
	On Israeli £250 Otzar Hityashouth Hayehudim B.M. Ordinary Stock—net	2	5	0				
		33	19	2				
33								
17	Interest received on Bank Deposit Account ..	36	18	3				
1	Interest on Post Office Savings Bank Deposit Account		14	0				
								71 11 5
£3,067								£2,776 1 11

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PALESTINE EXPLORATION QUARTERLY

Embodying the *Quarterly Statement* of the Palestine Exploration Fund and the *Bulletin* of the British School of Archaeology in Jerusalem

NINETY-SECOND YEAR 1960
NINETY-THIRD YEAR 1961

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